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Ontario. Legislative assembly.
Sessional papers.

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SESSIONAL PAPERS

VOL. XLV.—PART X.

SECOND SESSION

OF THE

THIRTEENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO

SESSION 1913

TORONTO:
Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1913

Printed By
WILLIAM BRIGGS
29-37 Richmond St. W
TORONTO

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No. 2 Estimates—Supplementary, for the service of the Province for the year ending 31st October, 1913. Presented to the Legislature, 28th February and 9th April, 1913. *Printed.* Estimates for the year ending 31st October, 1914. Presented to the Legislature, 14th April, 1913. *Printed.*

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No. 4 Report of the Bureau of Mines for the year 1912. Presented to the Legislature, 28th March, 1913. *Printed.**

No. 5 Report of the Inspector of Division Courts for the year 1912. Presented to the Legislature, 24th February, 1913. *Printed.*

No. 6 Report of the Inspector of Legal Offices for the year 1912. Presented to the Legislature, 25th March, 1913. *Printed.*

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No. 8 Report of the Provincial Municipal Auditor for the year 1912. Presented to the Legislature, 1st April, 1913. *Printed.*

No. 9 Report of the Commissioners for the Queen Victoria Niagara Falls Park, for the year 1912. Presented to the Legislature, 25th March, 1913. *Printed.*

No. 10 Report of the Department of Insurance for the year 1912. Presented to the Legislature, 13th March, 1913. *Printed.*

No. 10 (*a*) Report of the Registrar of Friendly Societies for the year 1912. Presented to the Legislature, 13th March, 1913. *Printed.*

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No. 13 Report of the Department of Game and Fisheries for the year 1912. Presented to the Legislature, 21st February, 1913. *Printed.*

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No. 16 Report of the Department of Education for the year 1912. Presented to the Legislature, 4th March, 1913. *Printed.*

No. 17 Report of Board of Governors of University of Toronto for the year ending 30th June, 1912. Presented to the Legislature, 13th February, 1913. *Printed.*

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No. 18 Report of the Secretary and Registrar of the Province for the year 1912. Presented to the Legislature, 3rd April, 1913. *Printed.*

No. 19 Report of Registrar General upon Births, Marriages and Deaths, for the year 1912. Presented to the Legislature, 4th March, 1913. *Printed.*

No. 20 Report of the Board of Health for the year 1912. Presented to the Legislature, 15th April, 1913. *Printed.*

No. 21 Report upon the Hospitals for the Insane for the year 1912. Presented to the Legislature, 3rd April, 1913. *Printed.*

No. 22 Report upon the Hospitals for Idiots, Orillia, and Epileptics, Woodstock, for the year 1912. Presented to the Legislature, 3rd April, 1913. *Printed.*

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No. 23 Report upon the Feeble-Minded for the year 1912. Presented to the Legislature, 3rd April, 1913. *Printed.*

No. 24 Report upon the Hospitals and Charities for the year 1912. Presented to the Legislature, 9th April, 1913. *Printed.*

No. 25 Report upon the Prisons and Reformatories for the year 1912. Presented to the Legislature, 3rd April, 1913. *Printed.*

No. 26 Report upon the Neglected and Dependent Children for the year 1912. Presented to the Legislature, 25th March, 1913. *Printed.*

No. 27 Report upon the operation of the Liquor License Acts for the year 1912. Presented to the Legislature, 28th February, 1913. *Printed.*

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No. 28 Report of the Department of Agriculture for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 29 Report of the Agricultural College and Experimental Farm for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 30 Report of the Veterinary College for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 31 Report of the Agricultural and Experimental Union for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 32 Report of the Fruit Growers Association for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 33 Return to an Order of the House of the 5th March, 1913, for a Return of copies of all correspondence between the Government, or any member thereof, and Dr. F. B. Fernow, regarding Reforestry work, or any class of work on behalf of the Government of Ontario, in any capacity. Presented to the Legislature, 22nd April, 1913. *Mr. Gamey. Not printed.*

No. 34 Report of the Vegetable Growers' Association for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 35 Report of the Corn Growers' Association for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

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No. 37 Report of the Bee-keepers' Association for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 38 Report of the Dairymen's Association for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 39 Report of the Live Stock Association for the year 1912. Presented to the Legislature 20th February, 1913. *Printed.*

No. 40 Report of the Farmer's Institutes for the year 1912. Presented to the Legislature, 20th February, 1913. *Printed.*

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No. 42 Report of the Horticultural Societies for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 43 Report of the Agricultural Societies for the year 1912. Presented to the Legislature, 20th February, 1912. *Printed.*

No. 44 Report of the Bureau of Industries for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

No. 45 Report of the Inspector of Factories for the year 1912. Presented to the Legislature, 17th April, 1913. *Printed.*

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No. 46 Report of the Temiskaming and Northern Ontario Railway Commission for the year 1912. Presented to the Legislature, 13th March, 1913. *Printed.*

No. 47 Report of the Hydro-Electric Power Commission for the year 1912. Presented to the Legislature, 6th March, 1913. *Printed.*

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No. 49 Return from the Records of the Elections held on the 28th October, 5th November, 1912, and 19th March, 1913. Presented to the Legislature, 4th February and 26th March, 1913. *Printed.*

No. 50 Report of the Archivist for the year 1912. Presented to the Legislature, 21st April, 1913. *Printed.*

No. 51 Report of Librarian upon the State of the Library for the year 1912. Presented to the Legislature, 5th February, 1913. *Not printed.*

No. 52 Return to an Order of the House of the 11th April, 1912, for a Return shewing: 1. The quantity of pine timber cut at or near mileage 81 on the Timiskaming and Northern Ontario Railway during each of the seasons 1907-1908, 1908-1909, 1909-1910, 1910-1911, by the North Land Mining Company, Limited. 2. The price at which the said pine timber was sold to the said Company in each of the said seasons. 3. The names of the persons by whom the pine cut in each of the said seasons by the said Company was measured for the Government. 4. The names of the original incorporators of the said Company and the names of its shareholders and directors in each of the years 1907, 1908, 1910, 1911 and 1912. Presented to the House 13th February, 1913. *Mr. Mageau. Not printed.*

No. 53 Return to an Order of the House of the 9th April, 1912, for a Return of Copies of all correspondence, official or unofficial, reports and written memoranda of every kind passing between the Government or any Minister or officer thereof and any other person or corporation with respect to:—(*a*) The granting of a permit for a tug owned by the Dominion Fish Company to fish on what is known as "the Lizard Island Preserve," during the season 1911, and copy of such permit. (*b*) The granting of a permit or permits to any other body or person or corporation to fish upon the said Lizard Island Preserve during the season 1911, together with copies of such permits. (*c*) The granting of permits to move the tugs of the Dominion Fish Company from one fishing ground to another, in either of the years 1909, 1910, 1911, with copies of such permits. (*d*) The issue of permits permitting the removal of tugs or other fishing boats owned by persons or corporations other than the Dominion Fish Company from one fishing ground to another during the seasons 1909, 1910, 1911, with copies of such permits. (*e*) The issue of a license to a Canadian-owned tug or boat to fish in waters of the Lizard Island Preserve in either of the seasons of 1911 or 1912, with copy of such license, if any. (*f*) The issue of licenses or permits to use 5-lb. or 6-lb. nets on the said Lizard Island Preserve during the seasons of 1911 and 1912, with copies of such licenses or permits. Presented to the Legislature, 13th February, 1913. *Mr. Mageau. Not printed.*

No. 54 Return to an Address to His Honour the Lieutenant-Governor of the sixth day of March, 1911, praying that he will cause to be laid before this House, a Return of copies of all correspondence between the Province of Ontario and the Dominion of Canada, regarding the establishment of Fish Hatcheries in Ontario. Presented to the Legislature, 13th February, 1913. *Mr. Gamey. Not printed.*

No. 55 Copies of Orders in Council and Regulations to be laid before the Legislative Assembly as required by section 27 of the Department of Education Act. Presented to the Legislature, 13th February, 1913. *Not printed.*

No. 56 Copy of an Order in Council approved by His Honour the Lieutenant-Governor the thirtieth day of April, A.D. 1912, pursuant to provisions of Subsection 3 of Section 78 of the Surrogate Courts Act, Chapter 31, 10 Edward VII., that there be paid to His Honour C. F. Sutherland, of the County Court of the County of Grey, from year to year during his tenure of Office, the Surplus Surrogate Fees over and above the amount payable by Statute to the Surrogate Judge of the said County of Grey, provided, however, that the sum paid out of the said Surplus Surrogate Fees shall not in any year exceed the sum of six hundred and sixty-six dollars ($666.00). Presented to the Legislature, 14th February, 1913. *Not printed.*

No. 57 Return to an Order of the House of the 11th April, 1912, for a Return of copies of (1) All correspondence passing between the Government or any Minister or official thereof or any commission under the Government or any official thereof and any other person or corporation with respect to the development of the Smoky Falls Water Power on the Sturgeon River for the benefit of the Town of North Bay. Presented to the Legislature, 17th February, 1913. *Mr. Mageau. Not printed.*

No. 58 Return to an Order of the House of the 17th day of February, 1913, for a Return shewing whether the Prime Minister or any person on his behalf received a telegram purporting to be from one Rowlandson of Elk Lake between the 1st and 11th days of December, 1911, addressed to the Prime Minister with reference to the building of the Elk Lake Branch of the Timiskaming and Northern Ontario Railway. 2. If such telegram was received, the contents of such telegram. 3. If such telegram was received, did the Prime Minister or any person in his name or with his authority or knowledge or on his behalf send a telegram in reply to the said Rowlandson. 4. If so, the date of such telegram and the contents thereof. Presented to the Legislature, 17th February, 1913. *Mr. Elliott. Not printed.*

No. 59 Return to an Order of the House of 2nd April, 1912, for a Return of copies of all correspondence between any person or persons whatever and the Government of Ontario, or any Minister or Official thereof, with respect to the water power on the Montreal River, known as the "Notch" and all applications for a lease of the said water power and any and all leases issued, assignments of any such leases and all other papers and documents in any way relating to the said "Notch" water power or to the Montreal-Cobalt Power Company, Limited, since the 1st day of January, 1905. Presented to the Legislature, 18th February, 1913. *Mr. Mageau. Not printed.*

No. 60 Return to an Order of the House of the 28th March, 1912, for a Return of Copies of (1) All correspondence between the Department of the Attorney-General or any official thereof and any other person whatsoever with respect to certain charges against M. Houston, one time Police Magistrate for the City of Chatham. (2) All charges against the said M. Houston. (3) All Commissions issued, evidence taken and documents submitted in connection with the said charges and the dismissal of the said M. Houston from his office as Police Magistrate. Presented to the Legislature, 18th February, 1913. *Mr. Richardson. Not printed.*

No. 61 Return to an Order of the House of the 20th March, 1912, for a Return of Copies of: 1. All correspondence, reports, estimates or returns of any kind and from any source respecting the quantity of timber cut upon the Munn limits in the seasons of 1909-10, 1910-11 and 1911-12. 2. The amount received by the Government of Ontario for timber dues, stumpage, rentals, or otherwise howsoever in connection with the said limits in each of the financial years 1909-10-11 with full details. 3. The Annual Return made to the Department of the Provincial Secretary by the Munn Lumber Company, Limited, for the years 1909, 1910 and 1911. Presented to the Legislature, 21st February, 1913. *Mr. Sinclair. Not printed.*

No. 62 Return to an Order of the House of the 11th March, 1912, for a Return showing:—1. (*a*) The number of Forest Rangers and Timber Cullers employed by the Government of Ontario in the seasons of 1903-4 and 1904-5. (*b*) The number of feet of timber measured in each season. (*c*) The amount of money paid in each of the said seasons to (1) Forest Rangers, (2) Timber Cullers. 2. Also showing all the information hereinbefore asked for with respect to the seasons 1909-10 and 1910-11. Presented to the Legislature, 21st February, 1913. *Mr. Mageau, Not printed.*

No. 63 Return to an Order of the House of the 17th February, 1913, for a Return of a Copy of the Report made by Mr. E. Saunders, appointed to investigate into certain charges made by Michael Farr of an attempt made to procure money from him in consideration of a license being renewed for the Union Hotel in the Town of Goderich, together with copies of all correspondence which passed between the Government and any person in reference to the said license or the said investigation, the evidence taken by Mr. Saunders and generally all papers, letters, memoranda or papers of any kind and description relating to the said license, including all papers, and correspondence relative to the refusal of a renewal of such license. Presented to the Legislature, 21st February, 1913. *Mr. Proudfoot. Not printed.*

No. 64 Return to an Order of the House of thirteenth day of April, 1912, for a Return of:—(*a*) All memorials, resolutions, letters or other written memoranda received by the Government or any Minister or official thereof since the 1st day of January, 1910, from any individual, public officer or organization with respect to the increase of the number of Judges of the Supreme Court of Judicature for Ontario or with respect to the changes in the constitution of the Supreme Court of Judicature for Ontario provided for in sections 1 to 19 inclusive, of The Law Reform Act, 1909. (*b*) Copies of all letters or written memoranda from the Government or any Minister or official thereof to any individual, public officer, or organization with respect to the said two subject matters, or either of them, since the said date. Presented to the Legislature, 26th February, 1913. *Mr. Elliott. Not printed.*

No. 65 Statement of the Auditor made pursuant to the provisions of Section 13, subsection 2, of the Audit Act as amended by Section 6, of Chapter 10, 9 Edward VII. Presented to the Legislature, 28th February, 1913. *Printed.*

No. 66 Return to an Order of the House of the 14th March, 1912, for a Return showing:—How many male patients have been admitted to each of the Provincial Institutions for the Insane, Feeble Minded, and Epileptics during the three years beginning Jan. 1st, 1909, and ending Dec. 31st, 1911. How many female patients were admitted to these institutions during the same years. How many male patients were discharged from each of these institutions during the same three years. How many female patients were discharged from each of these institutions during these years. Of these male patients discharged: 1st. How many were discharged recovered; 2nd. How many were discharged improved; 3rd. How many were discharged unimproved. Of the female patients discharged: 1st. How many were discharged recovered; 2nd. How many were discharged improved; 3rd. How many were discharged unimproved. Of the female patients discharged how many were under 45 years of age. Of the patients admitted to each of these institutions during the years 1909, 1910 and 1911 how many were admitted for the first time. How many were admitted for the second time. How many were admitted for the third time. How many had been admitted more than three times. In how many of these cases admitted during these years is there evidence that the patients have become the father or mother of children after the first attack of insanity. In how many of these patients is there a history of insanity, epilepsy or imbecility in the father, mother, brother or sister of the patient. In how many of these patients is there a history of insanity, epilepsy or imbecility in the children of the patients. How many patients are in each of these institutions who have had a father, mother, son or daughter in an asylum at some time. Presented to the Legislature, 28th February, 1913. *Mr. Godfrey. Not printed.*

No. 67 Return to an Order of the House of the 19th February, 1913, for a Return showing:—1. The number of meetings of the Advisory Council of Education held in each of the years 1909, 1910, 1911 and 1912. 2. The total number of meetings attended by each of the different members of this Council during each of the said years. 3. The total number of votes received by each candidate for representative of the public school teachers and for each candidate for representative of the high school teachers for each of the said years. Presented to the Legislature 28th February, 1913. *Mr. Marshall. Not printed.*

No. 68 Orders in Council issued under the provisions of Section 10 of Cap. 2, 2 George V. Presented to the Legislature, 3rd March, 1913. *Not printed.*

No. 69 Return to an Order of the House of the 3rd March, 1913, for a Return showing:—1. Copies of the Culler's report made by the Fort Frances Lumber Company for the logging seasons of 1909-10, 1910-11, 1911-12. Presented to the Legislature, 4th March, 1913. *Mr. Kohler. Not printed.*

No. 70 The Mining Industry in that part of Ontario served by the Timiskaming and Northern Ontario Railway for the year 1913. Presented to the Legislature, 11th March, 1913. *Printed.*

No. 71 Report of T. G. McMillan, covering investigations at James' Bay during 1912. Presented to the Legislature, 11th March, 1913. *Printed.*

No. 72 Report on the increase of the food supply for Ducks in Northern Ontario by G. R. Mickle, with description of edible plants by R. B. Thompson. Presented to the Legislature, 11th March, 1913. *Printed.*

No. 73 A Return to an Order of the House of the 26th February, 1913, for a Return showing: 1. All lands (other than the Railway's right of way) owned by the Timiskaming and Northern Ontario Railway Commission situate in the various municipalities of the Province, stating the municipality in which the land is situate, the area and estimated value of the land, and showing which are mineral lands, agricultural lands and town lots. 2. All lands (other than the Railway's right of way) owned by the Timiskaming and Northern Ontario Railway Commission situate in any unorganized territory within the Province, stating the unorganized territory in which the land is situate, the area and estimated value of the land, and showing which are mineral lands, agricultural lands and town lots. Presented to the Legislature, 10th March, 1913. *Mr. Atkinson. Not Printed.*

No. 74 Return to an Order of the House of the 3rd March, 1913, for a Return showing:—1. How much the Government has spent on private detective work in each of the years 1910, 1911 and 1912. 2. How much of the amount mentioned in the first paragraph hereof, has been spent by the Government in connection with the administration of the Liquor License Laws. 3. What amount was recovered in fines and penalties under the Liquor License Act, in each of the years 1910, 1911 and 1912. Presented to the Legislature, 12th March, 1913. *Mr. McQueen. Not printed.*

No. 75 Return to an Order of the House of the 11th April, 1912, for a Return of copies of all correspondence between the Government and any Minister or Official thereof with respect to the character, efficiency or teaching in the Schools in Simcoe, Stormont, Prescott, Russell and Glengarry Counties since January 1st, 1910. Of all orders, regulations, provisions or other means authorized or directed by the Government or any member or official thereof, to meet or in consequence of any of the said memorials, resolutions, affidavits, protests, charges or complaints. The schools in the said Counties from which the Provincial grant was withheld in the years 1910 and 1911 respectively. The reports or other evidence upon which grants were paid in 1911 to any schools in the said counties from which grants had been withheld in 1910. Presented to the Legislature, 14th March, 1913. *Mr. Elliott. Not printed.*

No. 76 Return to an Order of the House of the 14th March, 1913, for a Return of copies of: 1. All complaints from any other person or persons received in the years 1911 and 1912 by the Government or any Member of the Government regarding the conduct of Police Magistrate Dempsey. 2. All prosecutions instituted or carried on before Superintendent Rogers as a special magistrate within the Town of Cochrane during the years 1911 and 1912. 3. All protests filed with the Government, with the Prime Minister, the Provincial Secretary, Attorney-General or any other Member of the Government by the corporation of the Town of Cochrane, the Board of Trade or the citizens of the Town of Cochrane against the action of Superintendent Rogers in exercising or assuming to exercise jurisdiction within the Town of Cochrane as a special magistrate. Presented to the Legislature, 14th March, 1913. *Mr. Sinclair. Not printed.*

No. 77 Return to an Order of the House of the 26th February, 1913, for a Return of copies of all correspondence between the Department of Education, the Minister of Education himself, and the Board of Trustees of the Schools of the Village of Plantagenet since the 1st day of March, 1905, up to the 1st day of December, 1908, regarding the Teaching of French. Presented to the Legislature, 17th March, 1913. *Mr. Evanturel. Not printed.*

No. 78 Return to an Order of the House of the 24th February, 1913, for a Return of (1) Copies of the letters referred to on the last page of the brief furnished to the Attorney-General by the Crown Counsel in the proceedings against the Stamped Ware Association, showing offences under the different subsections of Section 520 of the Criminal Code, each incriminating letter being marked *a, b, c,* or *d,* as it discloses an offence against a subsection. The said brief forms part of Return 82, Session 1912. (2) Copies of all correspondence between the Crown Counsel and the Government with reference to prosecution of the said combine and all correspondence containing instructions, if any, from the Government not to prosecute. Presented to the Legislature, 17th March, 1913. *Mr. Elliott. Not printed.*

No. 79 Return to an Order of the House of the 14th March, 1913, for a Return of: (1) A copy of the information, depositions and proceedings before the Police Magistrate of Toronto (including the warrant of commitment) with respect to the members of the Tack Combine who were committed for trial by the Police Magistrate of the City of Toronto. (2) Copies of all correspondence passing between the Attorney-General or any one on his behalf or on behalf of the Government and Mr. Du Vernet, K.C., Crown Counsel, or anyone on his behalf with reference to the trial of the members of the Tack Combine. Presented to the Legislature, 17th March, 1913. *Mr. Rowell. Not printed.*

No. 80 Report on Road Construction under 2 George V. Cap. 2, being Consolidated Revenue Act of Ontario. Presented to the Legislature, 19th March, 1913. *Printed.*

No. 81 Return to an Order of the House of the 12th March, 1913, for a Return showing:—Copies of all correspondence between the Chairman or any other member of the T. & N. O. Railway Commission or any other person on their behalf and any official or employee of the T. & N. O. Railway at North Bay relative to the appointment of W. I. Johnston to his present position with the T. & N. O. Railway at North Bay, Ont. Presented to the Legislature, 19th March, 1913. *Mr. Munro. Not printed.*

No. 82 Report of S. Price *re* limitation of hours of Labour of underground workmen in the Mines of Ontario. Presented to the Legislature, 20th March, 1913. *Printed.*

No. 83 Return to an Order of the House of the 7th March, 1913, for a Return showing:—1. Copy of the information laid against one Stone before the Police Magistrate at Collingwood, in January, 1913, for an alleged violation of the Liquor License Act. 2. Copy of the judgment of the magistrate. Presented to the Legislature, 28th March, 1913. *Mr. Anderson (Bruce.) Not printed.*

No. 84 Return to an Order of the House of the 26th February, 1913, for a Return showing:—1. All expenses incurred by the Hydro-Electric Power Commission, or the Government, or by any person or persons on their behalf, in connection with the passing of the Hydro-Electric By-law at North Bay in January, 1913, or for the purpose of procuring the passage of such By-law, or otherwise connected with the submission of such By-law to the electors of North Bay. 2. The names of all persons employed by the Hydro-Electric Power Commission who were in or visited the Town of North Bay during the months of December or January last, and the purposes for which they were employed in the Town of North Bay, and the amounts that were paid to each of them for their services there. 3. Copies of all correspondence between the Hydro-Electric Power Commission, or the Government, or any person or persons on behalf of the Hydro-Electric Power Commission, or the Government, and the Council of the Town of North Bay, or any person on behalf of the said Council, relating to the Hydro-Electric By-law. Presented to the Legislature, 1st April, 1913. *Mr. Mageau. Not printed.*

No. 85 Further interim Report of the Commissioner on the subject of Compensation to Workmen for Injuries sustained in the course of their employment, together with draft Bill, embodying the Commissioner's conclusions. Presented to the Legislature, 2nd April, 1913. *Printed.*

No. 86 A preliminary study by H. G. Acres, of the Hydro-Electric Power Commission, dealing with the possibility of improving the general regimen and local flow characteristics of the Grand River, by means of Storage and Training Works. Presented to the Legislature, 3rd April, 1913. *Not printed.*

No. 87 Return to an Order of the House for a Return showing:—Copies of all correspondence passing between the Department of Education or the Minister or any official thereof and J. Russell McGregor of Gore Bay (President of the Manitoulin Conservative Association), the Public School Board of Gore Bay, the Public School Inspector in Manitoulin or any other person concerning the granting of a temporary teacher's certificate to one Jean McGregor. 2. A copy of the temporary certificate or temporary certificates granted to the said Jean McGregor. 3. Copy of the Departmental Regulations under which the Minister acted in granting the temporary certificate to the said Jean McGregor. 4. Copies of all advertisements (stating the dates of the same), inserted in any paper or papers prior to the granting of such temporary certificate to Jean McGregor, as required by subsection 2 of section 2 of Circular 30½, dated 7th May, 1912, issued by the Department of Education. 5. The evidence (if any) which the Minister had before him at the time such temporary certificate was granted, that the school board had " taken due measures to obtain a teacher with the prescribed grade of certificate," before the Inspector made his recommendation that Jean McGregor should be granted a temporary certificate. Presented to the Legislature, 4th April, 1913. *Mr. Marshall. Not printed.*

No. 88 A return to an Order of the House of the 21st February, 1913, for a Return showing:—1. All petitions, letters and other documents passing between the British settlers at Jeannette, Kent County, Ontario, and the Premier, the Minister of Agriculture, or any other member of the Government, or any officer or official thereof. 2. All reports by any officer or official of the Government on conditions at Jeannette. 3. All correspondence with the Department of Colonization, the Minister of Agriculture, or any officer or official of the Government in reference to the conditions at Jeannette. Presented to the Legislature, 7th April, 1913. *Mr. Anderson (Bruce.) Not printed.*

No. 89 Return to an Order of the House of the 26th February, 1913, for a Return showing:—1. The number of passes issued by the Timiskaming and Northern Ontario Railway Commission over its line of railway or any part thereof during the period from July 1st, 1911, to 1st July, 1912. 2. The persons to whom the said passes were granted. 3. The purpose for which each of the said passes was granted. Presented to the Legislature, 7th April, 1913. *Mr. Mageau. Not printed.*

No. 90 Return to an Order of the House of the 10th March, 1913, for a Return showing:—1. Copies of the agreements entered into by the members of the following combines and seized by the Toronto Police: (*a*) The Saw Manufacturers' Association; (*b*) The Canadian Churn Manufacturing Association; (*c*) The Hame and Saddlery Hardware Manufacturing Association. 2. Copies of all correspondence between the Attorney-General or any other Member of the Government and any counsel with reference to the prosecution of the said combines. Presented to the Legislature, 8th April, 1913. *Mr. Elliott. Not printed.*

No. 91 Return to an Order of the House of the 2nd April, 1913, for a Return showing:—Copies of all reports received by or in the possession of the Government upon the timber in Algonquin National Park covered by the following agreements:—1. Agreement dated 18th June, 1912, between the Crown and the Bank of Montreal. 2. Agreement dated 15th June, 1912, between the Crown and J. R. Booth. 3. Agreement dated 4th June, 1912, between the Crown and H. Stikeman, General Manager of the Bank of British North America. Presented to the Legislature, 8th April, 1913. *Mr. Marshall. Not printed.*

No. 92 Return to an Order of the House of the 3rd April, 1913, for a Return showing:—The findings of the Grand Jury in the prosecution against the Tack Combine. Presented to the Legislature, 8th April, 1913. *Mr. Sinclair. Not printed.*

No. 93 Return to an Address to His Honour the Lieutenant-Governor of the third day of April, 1913, praying that he will cause to be laid before this House, a Return of copies of all Orders in Council passed during the years 1906, 1907, 1908, 1909, 1910, 1911, 1912, increasing or decreasing the duties payable for tavern or shop licenses in any Provincial or Judicial District or in any municipality or locality situated therein, under authority of 6 Edw. VII., Chap. 47, Sec. 10 (1), and showing in respect to every such Order in Council: (*a*) the date of the same, (*b*) the name of the person holding the shop or tavern license affected by the said Order in Council, (*c*) the place where such shop or tavern license was held, (*d*) the amount of license fee as fixed by such Order in Council, (*e*) the amount of the license fee previous to such increase. Presented to the Legislature, 8th April, 1913. *Mr. Anderson (Bruce.) Not printed.*

No. 94 Return to an Order of the House of the 14th March, 1913, for a Return showing:—1. The number of instruments registered in each of the years 1909, 1910, and 1911, in the Land Titles Office, at Toronto. 2. The total amount of fees received in each of the said years. 3. The total amount of disbursements for each such year. 4. The amount of the Guarantee Fund. 5. The total losses. 6. The number of Plans of sub-division. Presented to the Legislature, 9th April, 1913. *Mr. Proudfoot. Not printed.*

No. 95 Copies of Orders-in-Council in accordance with the provisions of subsection 6 of section 78 of the Surrogate Courts Act. Presented to the Legislature, 14th April, 1913. *Not printed.*

No. 96 Copy of an Order in Council approved by His Honour the Lieutenant-Governor, the 3rd day of April, A.D. 1913, approving of the accompanying regulation, being a regulation of the Provincial Board of Health, for the control of Communicable Diseases under the provisions of the Public Health Act, Chapter 58, 2 George V. Also Regulations of the Provincial Board of Health, Ontario, approved by His Honour the Lieutenant-Governor in Council on the 10th day of August, 1912. Presented to the Legislature, 14th April, 1913. *Not printed.*

No. 97 Return to an Order of the House of the 19th February, 1913, for a Return showing:—1. The names of all Counsel retained on behalf of the Crown at any criminal assize in the Province during the year ending 31st December, 1912. 2. The Assize at which each Counsel was so retained. 3. The amount paid to every such Counsel for services rendered to the Crown at every such assize. 4. The names of all Solicitors or Counsel employed or retained by the Crown for any other purposes during the year ending 31st December, 1912, showing:—(*a*) The amount paid to every such Solicitor or Counsel. (*b*) The matter in respect of which such Counsel or Solicitor was so employed or retained. 5. The total amounts paid to Counsel for the Crown in criminal or other proceedings for the years 1910, 1911 and 1912. Presented to the Legislature, 14th April, 1913. *Mr. Richardson. Not printed.*

No. 98 Return to an Order of the House of the 9th April, 1913, for a Return showing:—1. Copies of all correspondence during the past year between the Minister of Agriculture or any other member or official of the Government and N. B. Colcock (formerly employed in the London Office of the Colonization and Emigration Branch) relating to the reorganization of the London Office, to the staff thereof, or to the resignation of the said Colcock, or to his dismissal from office, or to his retirement from the service of the Government, or to any other matters connected therewith. 2. Copies of all correspondence during the last year between the Minister of Agriculture or any other member or official of the Government and any other person or persons relating to the matters aforesaid. Presented to the Legislature, 15th April, 1913. *Mr. Anderson (Bruce.) Not printed.*

No. 99 Return to an Order of the House of the 15th April, 1913, for a Return showing:—Copies of all reports received by the Government and other information in the possession of the Government: 1. In reference to the general character of the country through which the projected line of the Bruce Mines and Algoma Railroad runs, and of the lands proposed to be granted to the said railway. 2. In reference to the extent and character of the different classes of timber on said lands. 3. In reference to the extent and character of the agricultural lands within the said areas. 4. In reference to the portion of the Mississagi Forest Reserve through which the projected line will pass and the effect that the construction of the said line will have upon the timber in the said Reserve. 5. The estimated length of the said line and the total estimated area of land to be granted to the said railway company. 6. In reference to the surveys already made, and the probable route of the said railway. 7. The names of the parties at present interested in or owning the said railway and who are responsible for its promotion with full information as to their business occupation and financial standing. 8. The character of the plants, mills or other industries upon which the railway undertakes to expend $3,500,000 and the site or sites where it is proposed to locate the same; and if the parties now interested in the railway are the parties who are to control the industries proposed to be established. Presented to the Legislature, 17th April, 1913. *Mr. Atkinson. Not printed.*

No. 100 Copies of Orders in Council approved by His Honour the Lieutenant-Governor the 12th day of April, A.D. 1913, appointing John Donnelly, Esquire, one of the Governors of the School of Mining, Kingston, in the room and stead of H. W. Richardson, resigned, and Agreements made between the Canada Publishing Company and His Majesty the King, respecting the right to print, publish and supply the Ontario High School English Grammar, and the Ontario High School Reader; also, an Agreement between the Copp, Clark Company, Ltd., and His Majesty the King, respecting the right to print, publish and supply the Ontario High School Reader. Presented to the Legislature, 18th April, 1913. *Not printed.*

No. 101 Return to an Order of the House of the 2nd April, 1913, for a Return showing:—All tavern and shop licenses, the renewal of which has been prohibited by the Provincial Secretary under Section 23 of 6 Edward VII., Chapter 47, as amended by Section 13 of 1 George V. Chap. 64. Presented to the Legislature, 18th April, 1913. *Mr. Proudfoot. Not printed.*

No. 102 Return to an Order of the House of the 27th March, 1913, for a Return showing:—Copies of all licenses or permits granted by the Game and Fisheries Department to the Dominion Fish Company, or to any person on its behalf during the seasons 1910, 1911 and 1912. Presented to the Legislature, 18th April, 1913. *Mr. Clarke. Not printed.*

No. 103 Return to an Order of the House of the 9th April, 1913, for a Return showing:—1. All correspondence between any member or official of the Government or any other person or persons, relating to the application of one John Lapointe of Spanish, for a renewal of his fishery license for the years 1911 and 1912. 2. Any reports or recommendations relating to the matter made by any official of the Game and Fisheries Department. Presented to the Legislature, 18th April, 1913. *Mr. Clarke. Not printed.*

No. 104 Return to an Order of the House of the 10th March, 1913, for a Return showing:—(*a*) Copies of all correspondence between any official of the Government and the Standard Insurance Company during the years 1907, 1908 and 1909. (*b*) A copy of any Reports made by the Inspector who inspected the books of the Standard Insurance Company during the same years. (*c*) Copies of all correspondence between any official of the Government and the Liquidator of the Standard Insurance Company. Presented to the Legislature, 18th April, 1913. *Mr. Elliott. Not printed.*

No. 105 Return to an Order of the House of the 19th February, 1913, for a Return showing:—1. All presentments made by Grand Juries within the Province of Ontario during the year ending 31st December, 1912, stating the assize at which each presentment was made and the date. Presented to the Legislature, 18th April, 1913. *Mr. Sinclair. Not printed.*

No. 106 Return to an Order of the House of the 26th February, 1913, for a Return showing:—1. The amount of money expended directly by the Government in each of the years 1911 and 1912, in the construction or repair of (*a*) roads; (*b*) bridges, and (*c*) drains in each of the Districts of Sudbury, Nipissing, Parry Sound and Sturgeon Falls, distinguishing the amount spent in each of said Districts for each of said purposes. 2. The amount of money expended during 1911 and 1912, by the Government by way of aid to any municipalities in the said Districts in the construction or repair of roads, bridges or drains, stating in respect to each work which was undertaken with Government aid as aforesaid. (*a*) The purpose of the work, that is, whether for roads, bridges or drains, and whether for construction or repair. (*b*) The District in which such work was undertaken. (*c*) The amount expended by the Government on such work. (*d*) The amount expended by the municipality on such work. Presented to the Legislature, 18th April, 1913. *Mr. Mageau. Not printed.*

No. 107 Return to an Order of the House of the 27th February, 1913, for a Return of:—1. Copies of all correspondence during the years 1910 and 1911 between the Minister of Lands, Forests and Mines, or any other member of the Government, and the Imperial Paper Mills Company, or the Liquidator or Interim Liquidator of the Imperial Paper Mills with reference to the diversion of water from Lake Temagimi into the Montreal River. 2. Copies of all correspondence passing during the years 1910 and 1911 between the Minister of Lands, Forests and Mines or any other member of the Government, and the Council of the Town of Sturgeon Falls, or any official or any other person on behalf of the Town of Sturgeon Falls, or the Board of Trade of the Town of Sturgeon Falls, or any person on behalf of the said Board of Trade. 3. How many cubic feet of water per second have been diverted from Lake Temagimi into the Montreal River, and what is the available head of water, and what is the horse power. Presented to the Legislature, 21st April, 1913. *Mr. Mageau. Not printed.*

No. 108 Statement of distribution of Revised and Sessional Statutes for the year 1912. *Not printed.*

No. 109 Return to an Order of the House of the 10th March, 1913, for a Return showing copies of the resolutions (if any) adopted at the Board Meeting held at the Horticultural Experiment Station at Jordan Harbour on or about December 17th last. Presented to the Legislature, 23rd April, 1913. *Mr. Anderson (Bruce.) Not printed.*

No. 110 Return to an Order of the House of the 27th March, 1913, for a Return showing:—1. Copy of an Order in Council dated the 23rd April, 1910, reducing the royalty payable to the T. & N. O. Railway by the Right of Way Mining Company. 2. Copy of an Order in Council dated 17th December, 1912, further reducing the royalty payable by the Right of Way Mining Company to the T. & N. O. Railway. 3. Copy of an Order in Council dated December 14th, 1909, reducing the royalty payable by the Cobalt Townsite Mining Company to the T. & N. O. Railway. 4. Copy of an Order in Council dated December 17th, 1912, further reducing the royalty payable by the Cobalt Townsite Mining Company to the T. & N. O. Railway. 5. Copy of an Order in Council dated December, 14th, 1909, reducing the royalty payable by the City of Cobalt Mining Company to the T. & N. O. Railway. 6. Copy of an Order in Council dated December 23rd, 1912, further reducing the royalty payable by the City of Cobalt Mining Company to the T. & N. O. Railway. 7. Copy of an Order in Council dated December 14th, 1909, reducing the royalty payable by the Nancy-Helen Mines, Limited, to the T. & N. O. Railway. 8. Copy of an Order in Council dated December 17th, 1912, further reducing the royalty payable by the Nancy-Helen Mines, Limited, to the T. & N. O. Railway. 9. Copy of an Order in Council dated December 14th, 1909, reducing the royalty payable by the Wright Silver Mining Co., to the T. & N. O. Railway. 10. Copy of an Order in Council dated December 17th, 1912, further reducing the royalty payable by the Wright Silver Mining Co., to the T. & N. O. Railway. 11. Copy of an Order in Council dated December 14th, 1909, reducing the royalty payable by the Railway Reserve Mines, Limited, Jack Pot Silver Mining Company, Ontario Development and Mining Company, and Station Grounds Mining Company, to the T. & N. O. Railway. 12. Copy of an Order in Council dated December 17th. 1912, further reducing the royalty payable by the Railway Reserve Mines, Limited, Jack Pot Silver Mining Co., Ontario Development and Mining Company and Station Grounds Mining Company, to the T. & N. O. Railway. 13. Copy of an Order in Council or agreement reducing the royalty payable by the O'Brien Mine to the Crown. 14. Copy of Order in Council or agreement, further reducing the royalty payable by the Chambers-Ferland Mining Company from 25 *per cent.* of value of ore at pit's mouth, less surface charges, to 25 *per cent.* of net profits. 15. Copy of agreement dated 8th October, 1912, exempting Chambers-Ferland Mining Company from royalty, unless on rich ore being found, when rate of 25 *per cent.* on net profits made to be imposed. Presented to the Legislature, 23rd April, 1913. *Mr. McDonald. Not printed.*

No. 111 Return to an Order of the House of the 26th February, 1913, for a Return shewing:—1. Copies of all correspondence and other papers, documents, etc., seized by the Crown in connection with the prosecution of the Canadian Washing Machine Manufacturing Association. 2. Copies of all correspondence between the Government or any member or official of the Government and any other person or persons relating to the Canadian Washing Machine Manufacturing Association, or the prosecution thereof, or the discontinuance of such prosecution. 3. Copies of all correspondence and other papers, documents, etc., seized by the Crown in connection with the prosecution of the Canadian Clothes Wringer Manufacturing Association. 4. Copies of all correspondence between the Government, or any member or official of the Government, and any other person or persons, relating to the Canadian Clothes Wringer Manufacturing Association, or the prosecution thereof, or the discontinuance of such prosecution. Presented to the Legislature, 23rd April, 1913. *Mr. Sinclair. Not printed.*

No. 112 Return to an Order of the House of the 11th March, 1913, for a Return showing:—For the year 1912. 1. The number of cases in which damage suits were entered in Court against the employer. 2. The number of instances where damages were obtained and the amounts. 3. The number of cases non-suited by the Court. 4. The number of cases where employers settled by paying compensation without damage suit and the amounts. Presented to the Legislature, 7th May, 1913. *Mr. McQueen. Not printed.*

No. 113 Return to an Order of the House of the 27th March, 1913, for a Return showing:—1. The names of the professors of the Faculty of Education (not including instructors in practice schools) at (*a*), Toronto University; (*b*), Queen's University. 2. The number of hours teaching done by each of said professors *per* week. 3. The number of students in attendance in the Faculty of Education during the Session 1912-1913, at (*a*), Toronto University; (*b*), Queen's University. 4.The average cost *per* pupil in the Faculty of Education during each of the last five years at (*a*), Toronto University; (*b*), Queen's University. 5. The number of extra-mural students under instruction by the Faculty of Education at (*a*), Toronto; (*b*), Queen's. 6. The number of hours of instruction *per* session given in each of the following subjects of the course of study in education:—(*a*) History of Education and Educational systems; (*b*) Principles of Education; (*c*) Psychology and General method; (*d*) School management and school law; (*e*) Methods in Public School subjects; (*f*) Methods in High School subjects; (*g*) Art work; (*h*) Commercial work and writing; (*i*) Constructive work; (*j*) Household science; (*k*) Nature study; (*l*) Music; (*m*) Physical training; (*n*) Physiology and Hygiene, including treatment of emergencies. Presented to the Legislature, 7th May, 1913. *Mr. Marshall. Not printed.*

Forty-Third Annual Report

OF THE

Entomological Society

OF ONTARIO

1912

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1913

Printed by
WILLIAM BRIGGS
29-37 Richmond Street West
TORONTO

To His Honour Col. Sir John Morison Gibson, K.C.M.G., etc., etc., etc.,
Lieutenant-Governor of the Province of Ontario.

May it Please Your Honour:

The undersigned begs to present herewith, for the consideration of your Honour, the Report of the Entomological Society of Ontario for 1912.

Respectfully submitted,

JAMES S. DUFF,

Minister of Agriculture.

Toronto, 1913.

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FORTY-THIRD ANNUAL REPORT

OF THE

Entomological Society of Ontario

1912

To the Honourable James S. Duff, Minister of Agriculture.

SIR,—I have the honour to present herewith the Forty-third Annual Report of the Entomological Society of Ontario.

The Forty-ninth Annual Meeting of the Society was held at Ottawa on the 19th and 20th of November, 1912, and was marked by the unusual variety of subjects discussed and the large number of members who contributed addresses and papers. These, together with the reports of the various officers and branches of the society, are given in full in the following pages.

The "Canadian Entomologist," the society's monthly magazine, has been regularly issued during the past year, and has now completed its forty-fourth volume. It continues to maintain the wide circulation and scientific value which have characterized its reputation in the past.

I have the honour to be, Sir,

Your obedient servant,

EDMUND M. WALKER,
Editor.

Biological Department,
University of Toronto.

Entomological Society of Ontario

OFFICERS FOR 1912-1913

President—Rev. C. J. S. Bethune, M.A., D.C.L., F.R.S.C., Professor of Entomology and Zoology, O. A. College, Guelph.

Vice-President—Dr. C. Gordon Hewitt, Dominion Entomologist, Central Experimental Farm, Ottawa.

Secretary-Treasurer—Mr. A. W. Baker, B.S.A., Demonstrator in Entomology, O. A. College, Guelph.

Curator—Mr. G. J. Spencer, Assistant in Entomology, O. A. College, Guelph.

Directors— Division No. 1, Mr. Arthur Gibson, Division of Entomology, Central Experimental Farm, Ottawa; Division No. 2, Mr. C. E. Grant, Orillia; Division No. 3, Mr. A. Cosens, Parkdale Collegiate Institute, Toronto; Division No. 4, Mr. C. W. Nash, East Toronto; Division No. 5, Mr. F. J. A. Morris, Port Hope; Division No. 6, Mr. R. S. Hamilton, Collegiate Institute, Galt; Division No. 7, Mr. W. A. Ross, Jordan Harbour.

Directors (Ex-Presidents of the Society)—Professor Wm. Saunders, C.M.G., LL.D., F.R.S.C., F.L.S., late Director of the Experimental Farms of the Dominion of Canada, Ottawa; Rev. C. J. S. Bethune, M.A., D.C.L., F.R.S.C., Guelph; W. Hague Harrington, F.R.S.C., Ottawa; Professor John Dearness, Vice-Principal Normal School, London; Henry H. Lyman, M.A., F.E.S., F.R.G.S., Montreal; Rev. Thomas W. Fyles, D.C.L., F.L.S., Ottawa; Professor Wm. Lochhead, B.A., M.S., Macdonald College, Que.; John D. Evans, C.E., Chief Engineer, Central Ontario Railway, Trenton; Professor Tennyson D. Jarvis, B.S.A., Ontario Agricultural College, Guelph; E. M. Walker, B.A., M.B., University of Toronto.

Editor of " The Canadian Entomologist "—Dr. E. M. Walker, Toronto.

Delegate to the Royal Society—Mr. A. F. Winn, Montreal.

Auditors—Messrs. J. E. Howitt, M.S.A., and L. Caesar, B.A., B.S.A., O. A. College, Guelph.

FINANCIAL STATEMENT

For the year ending October, 1912

Receipts.		*Expenditures.*	
Balance from 1911	$ 826 20	Printing	$1,114 81
Members' fees	357 51	Cork and pins	113 59
Advertising	30 75	Expense	70 67
Government grant	1,000 00	Salaries	200 00
Sale of reports and back numbers	109 34	Library	121 35
Sale of cork and pins	120 30	Annual Meeting	24 40
Bank interest	23 87	Annual Report	90 95
		Insurance	26 00
		Bank exchange	7 32
	$2,467 97	Balance on hand	698 88
			$2,467 97

(Signed) A. W. Baker,
Treasurer.

Auditors. { J. E. Howitt.
L. Caesar.

DR. E. M. WALKER,
President of the Entomological Society
of Ontario, 1911-1912.

LIST OF CANADIAN MEMBERS

ONTARIO.

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Brealey, A.	Hatzic.
Brittain, W. H.	Vernon.
Bryant, T.	Ladysmith.
Brydon, J.	Victoria.
Bush, A. H.	Vancouver.
Canningham, T.	“
Chapman, C.	“
Collins, H.	Grand Forks.
Clark, R.	Vancouver.
Cockle, J.	Kaslo.
Croker, A.	Victoria.
Crease, H.	Kelowna.
Day, G. O.	Vancouver Island.
Davidson, T.	Vancouver.
Davidson, J.	“
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Getchell, F. H.	“
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Hanham, A. W.	Duncan's Station.
Harvey, R. V.	Victoria.
Hill-Tout, W. S.	Abbotsford.
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Hunt, E. C.	Creator.
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Nicolle, W.	“
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Wickham, Prof. H. F.	Iowa City, Iowa.

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Saunders, Dr. William Late Director of the Experimental Farms of the Dominion.	Ottawa.
Bethune, Rev. C. J. S. Professor of Entomology, Ontario Agricultural College.	Guelph.
Reed, E. Baynes Director of the Meteorological Station.	**Victoria, B.C.**

The Entomological Society of Ontario

ANNUAL MEETING

The Forty-ninth Annual Meeting of the Society was held at Ottawa on Tuesday and Wednesday, November 19th and 20th, 1912.

DR. E. M. WALKER, President of the Society, occupied the chair during the day meetings, which were held in the Lecture Room of the Carnegie Library, and at the Evening Session in the Assembly Hall of the Normal School, the meeting was presided over by the Hon. Martin Burrell, Minister of Agriculture.

Among those present were: Rev. T. W. Fyles, Ottawa; Mr. W. H. Harrington, Ottawa; Mr. H. H. Lyman, Montreal; Mr. J. D. Evans, Trenton; Dr. C. G. Hewitt, Ottawa; Mr. Arthur Gibson, Ottawa; Prof. L. Caesar, Guelph; Mr. J. M. Swaine, Ottawa; Mr. A. G. Turney, Fredericton, N.B.; Mr. A. W. Baker, Guelph; Mr. A. F. Winn, Montreal; Mr. F. W. L. Sladen, Ottawa; Prof. J. E. Howitt, Guelph; Mr. J. A. Guignard, Ottawa; Dr. R. Matheson, Truro, N.S.; Prof. W. Lochhead, Macdonald College, Que.; Rev. Bro. Germain, Ottawa; Rev. J. B. Mignault, St. Therese, Que.; Mr. J. I. Beaulne, Ottawa; Rev. Father Marcotte, Sherbrooke, Que., and Messrs. J. D. Tothill, G. Beaulieu, G. E. Sanders, H. F Hudson, C. E. Petch, field officers of the Division of Entomology.

In addition to the above, many members of the Ottawa Field-Naturalists' Club attended the various sessions, particularly the evening meeting. Letters expressing regret at their inability to attend were received from: Rev. Prof. Bethune. Guelph; Dr. Wm. Saunders, London; Dr. E. P. Felt, Albany, N.Y.; Prof. C. C. James, Toronto; Rev. J. A. Jean, Montreal; Mr. H. G. Payne, Granville Ferry, N.S., and Mr. G. Chagnon, Montreal.

On Tuesday morning the members met at the Experimental Farm, where a pleasant hour was spent in looking over the specimens exhibited by those present and in examining the fine collections belonging to the Division. At eleven o'clock a meeting of the Council took place, at which the report of the proceedings of the society during the past year was drawn up and various questions of interest to its members were discussed. In view of the fact that next year will mark the event of the society's fiftieth annual meeting, it was decided that a jubilee meeting be held in honour of the occasion, to which delegates from other societies be invited, and that this meeting be held at Guelph about the beginning of September, the exact date to be decided upon later.

The afternoon meeting was held in the Carnegie Library, the proceedings commencing at 2 o'clock with the reading of the reports of the directors on the insects of the year in their respective districts.

REPORTS ON INSECTS FOR THE YEAR.

DIVISION NO. 1, OTTAWA DISTRICT—ARTHUR GIBSON, CENTRAL EXPERIMENTAL FARM, OTTAWA.

The season of 1912 in the Ottawa District was a most remarkable one. With the exception of the first half of the month of July, the weather was exceptionally cool with continual falls of rain. The following notes on the prevalence of injurious insects in the district are presented:—

INSECTS ATTACKING FIELD CROPS.

CUTWORMS. In light soils cutworms were fairly abundant, and in the earlier part of the season did considerable damage in some fields. Young turnips, beets, radishes and newly set-out cabbages and cauliflowers were attacked by the Red-backed Cutworm (*Euxoa ochrogaster*) and the Dark-sided Cutworm (*Euxoa messoria*), the two common cutworms of the district.

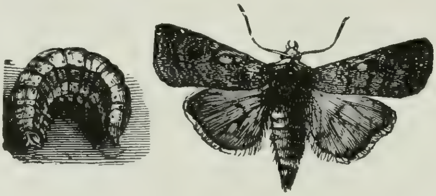

Fig. 1.—Dark-sided Cutworm.

ROOT MAGGOTS. These insects were not so abundant in 1912 as they were the year previous. They were, however, present in sufficient numbers to destroy many radishes, cabbages, cauliflowers, and, in some fields onions. In one of our fields of turnips on the Farm, 16 per cent. of the plants were attacked by the Radish Maggot. The most interesting outbreak of root maggots was that of the Corn-seed Maggot, which did conspicuous injury to seed corn, not only in the Ottawa district, but also at several points in eastern Ontario. The season was especially favourable for this insect, and many farmers thought that the cold, backward spring was responsible for the seed failing to germinate. Unfortunately, our knowledge of the life-history and habits of this insect is by no means complete, and until we have further information it will be difficult to find successful control measures. The remedy which we have suggested in the past is to sow seed corn in good season in well prepared soil and not deeper than one or two inches.

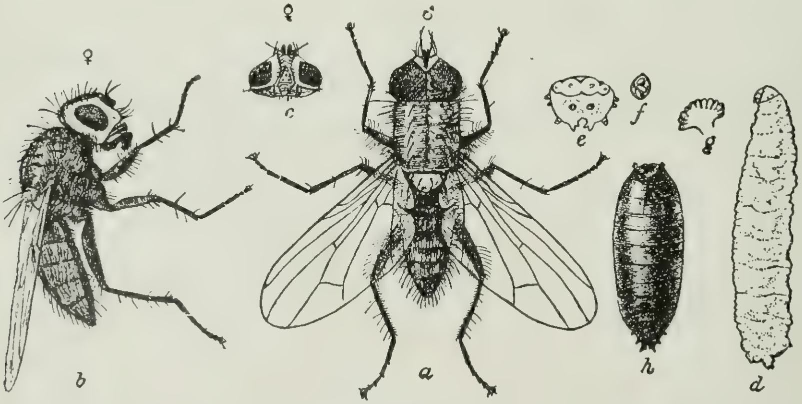

Fig. 2.—The Seed-corn Maggot: *a*, *b*, flies; *d*, maggot; *h*, puparium; all very much enlarged. (After Chittenden, U. S. Dept. Agriculture.)

WHITE GRUBS (*Lachnosterna*). Strawberries, potatoes and corn were the crops chiefly damaged by White Grubs during the past season. In some fields of corn, near Ottawa, these grubs were remarkably abundant.

Zebra Caterpillar (*Mamestra picta*). Swarms of these caterpillars were found on cabbage leaves at Ottawa on the 18th September. At that time the larvæ were half an inch in length and were quickly devouring the leaves. There are two broods of this insect every year. The winter is passed in the pupal state in the ground and the moths when they emerge in May deposit clusters of eggs on the leaves of low-growing weeds and other plants. I have found them on Lamb's Quarters. The young caterpillars appear in about a week after the eggs are laid and for a time they feed together, but as they reach maturity they separate and feed singly. These caterpillars are full grown in midsummer. This brood some years does serious damage to turnips, cabbages, peas, and clover. The second brood of caterpillars appear in the latter part of August and specimens may be seen as late as the end of October. In late autumn, at Ottawa, they are commonly seen on asparagus plants.

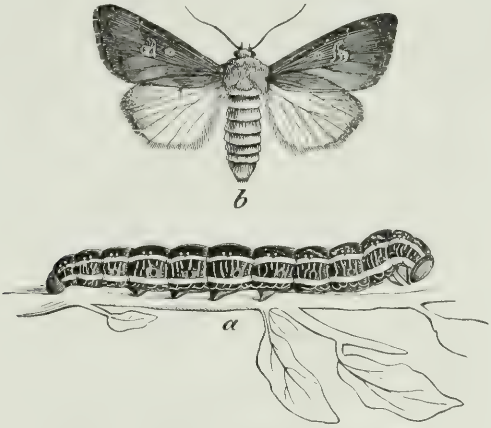

Fig. 3.—Zebra Caterpillar and Moth.

Flea-Beetles. The Turnip Flee-Beetle (*Phyllotreta vittata*) as usual appeared in destructive numbers throughout the district. Another destructive flea-beetle, viz., the Horse Radish Flea-Beetle (*Phyllotreta armoraciae*) was added to our local list of injurious insects. The first specimen observed was seen on radishes in our experimental plots on 31st May. It is apparently established in the district, as three specimens were captured by Mr. E. W. Calvert, at Ironside, Que., which is close to Ottawa, on June 8.

Clover Root Borer (*Hylastinus obscurus*). Is some fields of alfalfa this borer was working freely, causing noticeable loss. In one field examined 31st July two adult beetles were found in a root which had been tunnelled by the larvæ.

The Sleepy Weevil (*Otiorhynchus ovatus*). In our experimental plots of cauliflowers and cabbages the adults of this insect were present in small numbers. In the case of cabbages they were found between the outer leaves of the head, and in cauliflowers they were concealed at or near the bases of the stalks of the head. The finding of this weevil feeding on these plants is of interest. In the Insectory I kept some of the weevils, for about a week, in shell vials, feeding them on pieces of cauliflowers.

Insects Attacking Fruit Crops.

The **Apple Maggot** (*Rhagoletis pomonella*) (Fig. 4). I regret to report that on Aug. 19, while examining Codling Moth injury in a small crab apple orchard on the outskirts of Ottawa, I saw within a few inches of the apple I had hold of an adult of the Apple Maggot. It was resting on a leaf, and after examining it closely I attempted to catch it with my hand but failed. Several days previous to the above date Mr. E. W. Calvert, who was working temporarily in the Division, reported to me that he had seen in the Arboretum of the Farm a fly which he took to be that of the Apple Maggot. As yet no injury by the larvæ of this fly has been detected in Ottawa.

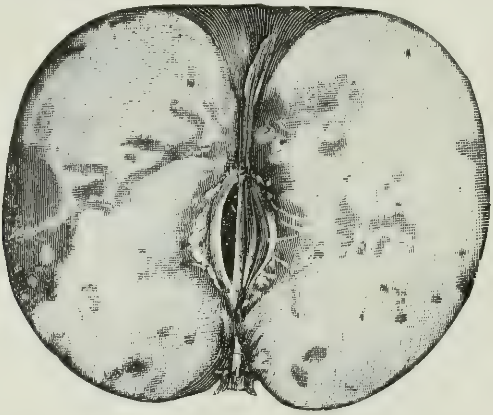

Fig. 4.—Fruit Injured by the Apple Maggot.

Orchardists in the district should watch closely for indications of the presence of this extremely destructive insect, and, if found, report any occurrence at once to the Division of Entomology, Central Experimental Farm.

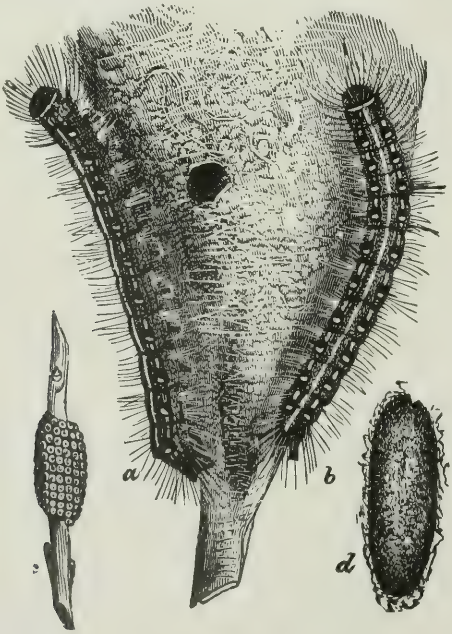

Fig. 5.—American Tent Caterpillars on their web; *c*, egg-bracelet; *d*, cocoon.

The American Tent Caterpillar (*Malacosoma americana*). In my report last year I referred to an exceptional outbreak of this caterpillar in 1911. During the past season, however, the insect was present throughout the district in much larger numbers and caused widespread defoliation, particularly of apple and wild cherry trees. The first date this year on which the young caterpillars were noticed to be emerging from the eggs was 30th April. At the end of the first week in May thousands of small nests were seen throughout the district, chiefly on the above two trees. In the latter half of May it was a common sight to see in apple orchards men going around with lighted torches burning the webs containing the caterpillars. Early in June the defoliated trees were very conspicuous throughout the infested area. On June 9, I counted 37 large nests on one medium sized cherry tree. In the Gatineau Valley district in many orchards not a single leaf was left on the trees. This was also the case in orchards, in general, throughout the entire Ottawa District.

Figs. 6 and 7.—American Tent Caterpillar (Male and Female Moth).

The Codling Moth (*Carpocapsa pomonella*) was abundant in unsprayed orchards. It seemed to be more numerous this year than in 1909 and 1910. Other common orchard pests, as the Oyster Shell Scale (*Lepidosaphes ulmi*), the Fall Webworm (*Hyphantria textor*) and the Pear Slug (*Eriocampa cerasi*) were also present in unusually injurious numbers.

Insects Attacking Forest and Shade Trees.

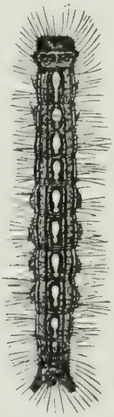

Fig. 8.—Forest Tent Caterpillar.

The most remarkable outbreak of an injurious insect of which we have record at Ottawa occurred in 1912, viz., that of the Forest Tent Caterpillar (*Malacosoma disstria*). In the Gatineau Valley district miles of forest country were stripped bare on both sides of the river by the voracious caterpillars. The woods of poplar and birch between Ironside and Chelsea, and back from Chelsea to Kingsmere, were entirely denuded of foliage and resembled their winter condition. Such defoliation was complete on June 4th. In the last week of May and the first week of June the caterpillars congregated in thousands upon the tracks of the Canadian Pacific Railway between Ironside and Chelsea. Trains were stopped almost every day during that period, and on some occasions hours were spent in endeavoring to get the train from the former to the latter station, the distance between being only about 3½ miles. Here, however, the grades are heavy and the engine could not make any headway on account of the caterpillars being present on the tracks in such numbers. For a part of the period the early afternoon train for Chelsea had two engines, and on one evening with three engines it was impossible at first to make the grade. Night after night the conductor and fireman or engineer would run ahead of the train and brush off the caterpillars with a broom, or shovel sand over the rails so that the wheels of the engine could get a grip. I never saw such hordes of caterpillars before, and farmers who have lived in the district for sixty years report that they have never experienced such an outbreak. Poplar and birch were the two trees particularly favoured by the caterpillars, but maple, oak, ash, willow, apple, wild cherry, and even raspberry, were defoliated. By the middle of June the caterpillars were mature and beginning to spin their cocoons. The first moths began to emerge early in July, but the vast numbers of them did not appear till about the middle of the month. At this time they migrated to the arc lights in the city of Ottawa in myriads and the females were ovipositing on electric light poles, fences, and particularly on shade trees along the city streets. Countless numbers of eggs were deposited, and there is, unfortunately, every indication of another serious outbreak of the Forest Tent Caterpillar in 1913. In the vicinity of Chelsea, Que. (about nine miles from Ottawa), large numbers of the caterpillars were destroyed, just before maturity, by a disease apparently of a fungous nature. They were attached to the trunks of trees, fences, and other perpendicular objects. On one tree I counted 692 dead larvæ. These were massed together on the trunk of a medium-sized tree, and all within about four feet of the ground.

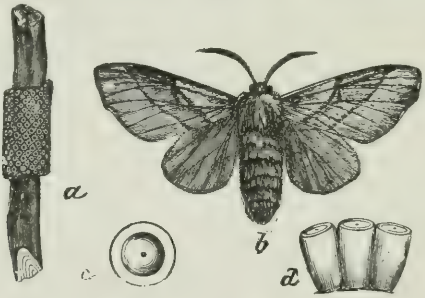

Fig. 9.—Forest Tent Caterpillar (Moth and Eggs).

THE SPRUCE BUDWORM (*Tortrix fumiferana* Clem.). In the immediate vicinity of Ottawa the caterpillars were again fairly abundant, but I did not observe any conspicuous destruction of foliage. Many moths were noticed around spruces on the Farm, particularly in the latter half of July, when many egg masses were deposited on the trees. The first moth reared emerged on June 24.

THE MAPLE LEAF-ROLLER (*Cenopis pettitana* Rob.). In my report for last year I referred to an interesting occurrence of this species at Chelsea, Que., During the past summer the insect appeared in much greater numbers in the same district. During the second week in July the moths were very numerous in the woods, and there was much variation in their appearance, the colour of the wings ranging from almost a pure, shining white to yellow, more or less spotted and streaked with brown or reddish-brown.

Garden and Greenhouse Insects.

Garden plants were not injured by insects very seriously during the past season. The Tarnished Plant Bug (*Lygus pratensis*) was present in fair numbers and was complained of in the latter half of the season as doing some injury to the buds of dahlias. In the early part of the season the Colorado Potato Beetle (*Leptinotarsa decemlineata*) attacked freely plants of the genus *Nicotiana,* and American Rose Slug (*Endelomyia rosae*) did conspicuous damage in some rose gardens. The larvæ of the Bordered Sallow (*Pyrrhia umbra*) were present in numbers in the rose garden at the Central Experimental Farm. In the middle of July they were found attacking rosebuds, the caterpillars at that time being in different stages from young larvæ to larvæ about one-third grown. It was interesting to note the small numbers of plant lice which were present this year on flowering plants in the beds at the Experimental Farm.

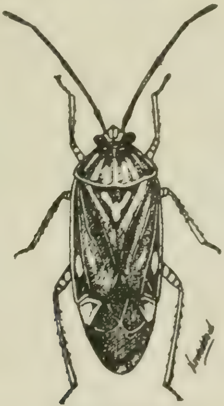

Fig. 10.—Tarnished Plant Bug.

In greenhouses the insect which is doing most damage at the present time is the Greenhouse Leaf-tyer (*Phlyctaenia ferrugalis*). This has done a good deal of injury in one large house, the chief damage being to chrysanthemums. The Variegated Cutworm (*Peridroma saucia*) is occasionally destructive in greenhouses. At the present time the caterpillar is attacking carnations in one house, climbing up the plants and eating out the contents of the buds.

Division No. 3, Toronto District—A. Cosens.

The season of 1912 has been rather a disappointing one to the Entomologist. Not only did the cool weather, in the case of several species, prevent a large number of insects from reaching maturity, but the excessive rainfall gave to the observation and collection of specimens somewhat the character of an aquatic pastime.

Some insects, however, seem to have prospered unusually well either on account of or in spite of the inclement season. In this vicinity, from about May 10th to the present date, September 23rd, the Red Admiral butterfly (*Pyrameis atalanta,* Linnæus) has been unusually plentiful. It has not appeared in nearly such large numbers since the year 1905. A number of specimens were examined during May, and practically all of them were brightly coloured, and seemed to have recently emerged from the chrysalids. In comparison, only a few were doubtfully classed as hibernating forms. No doubt many factors, few of which are yet understood, control the production of each species of butterfly, but in all probability parasitism plays the chief role. This will account for a season with numbers above the average being succeeded by one with correspondingly low numbers in the same species, the year of plenty having produced ideal conditions for the increase of the parasites. During the season fewer specimens than usual were seen of the other species of butterflies, with perhaps the exception of the Viceroy (*Basilarchia archippus,* Cramer).

The "Spittle Insects," Fam. Cercopidae, were also very numerous. During July, in low-lying land, nearly every specimen of Red Top (*Agrostis alba var. vulgaris,* Thurb.) carried a mass of froth, indicating the presence of either the larva or pupa of the insect. With the purpose of testing the froth for the enzyme diastase, a large number of the masses were washed off into distilled water. The froth remained separate from the water until toluol was added; this seemed to alter the surface tension, and the froth passed into solution. A small quantity of this solution was then placed in about an equal amount of starch paste, made of cornmeal, and left for a few hours. A test with Fehling's solution then showed that a comparatively large amount of the starch had been changed to sugar. Without further investigation it is rather premature to surmise the purpose of this sugar-producing enzyme, but it seems possible that it may have a pre-digestive effect on the starch of the host and thus convert it into a more soluble form for the use of the larva. Experiments, not yet complete, seem to indicate that stems, surrounded by the froth masses, do contain more sugar than an equal weight of unaffected stems.

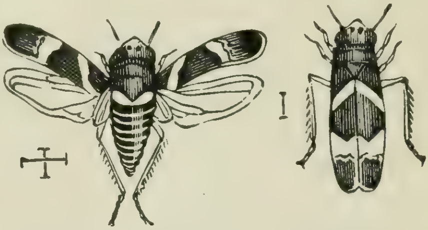

Fig. 11.—Grape Vine Leaf-hopper.

Another species in the same family also appears to have been influenced favourably by the vagaries of the season. Dr. Walker has informed me that the Grape Vine Leaf-hopper (*Typhlocyba comes*) was very plentiful on the Boston Ivy (*Ampelopsis veitchii*). The leaves on which the insects were feeding had become pale and blotchy in appearance.

The Elm Bark Louse (*Gossyparia spuria,* Mod.) has not proven as serious a pest here as was apprehended on its first appearance. It now seems to be practically absent from certain streets, the trees of which were badly infested a couple of years ago. While it has killed some very small introduced elms, it has not injured the larger specimens materially, and the indigenous *Ulmus americana,* L., is not often attacked by it. Specimens of the Coccid (*Kermes pubescens,* Bogue) were not numerous this season. This insect causes a marked swelling and distortion of the petioles and young twigs of its host, *Quercus alba*, L. In some cases these deformities are decidedly gall-like in character. Sections of these show an enlargement of the cells of the host without proliferation of the tissues. Not a single specimen of the Coccid (*Kermes galliformis*, Riley) was found during the year.

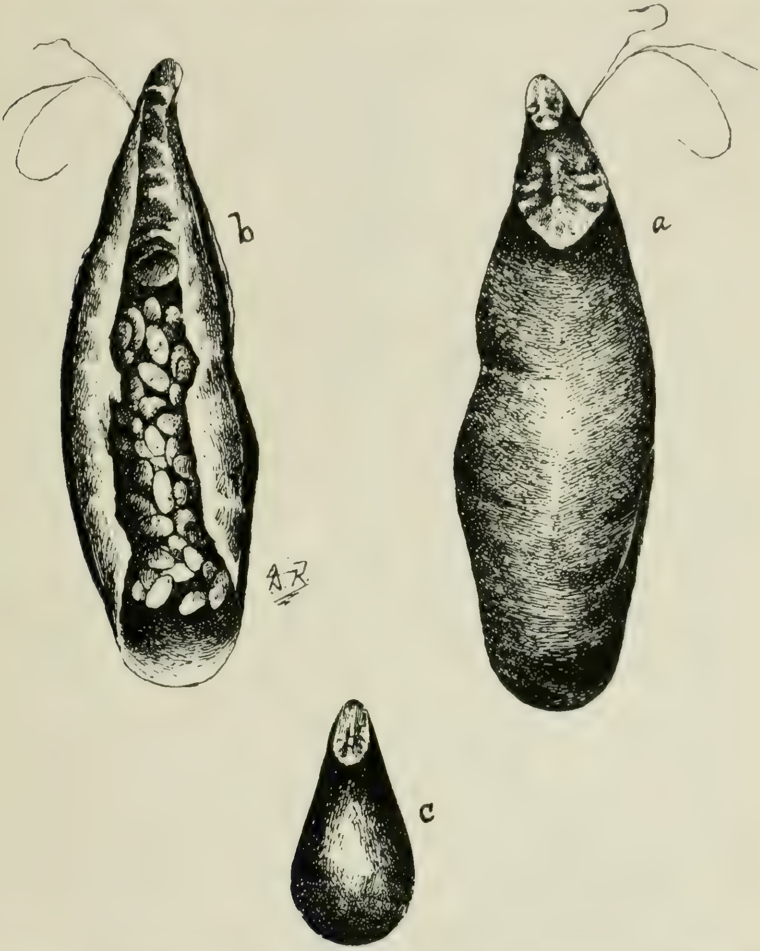

Fig. 12.—Oyster-shell Scale (*Lepidosaphes ulmi*): (*a*) Adult female, back view, showing the two moulted skins at anterior end, and the bristles of the sucking tube; (*b*) Adult female, turned over, showing the insect at the anterior end and the eggs at the posterior end; (*c*) Adult male scale, much smaller than female, with one moulted skin at anterior end.

The small moth, *Euclemensia bassettella*, Clemens, appears to be checking the scale in this locality almost to the point of extinction. In former years, an average of about 25% of the specimens were found to be parasitized by this insect. In the apple orchards near the city the Oyster-shell scale (*Lepidosaphes ulmi*, Linn.) is apparently becoming more destructive each year. This is probably due to the fact that little new stock has been set out, and the powers of resistance of the old trees are gradually diminishing. Further, diseased and useless trees are almost invariably left to act as breeding places for the insects and centres from which young stock can be infected.

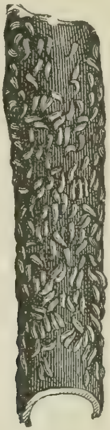

Fig. 13.—Piece of Branch infested with Oyster-shell Scale.

REPORT OF THE COUNCIL.

The Council of the Entomological Society of Ontario begs to present its report for the year 1912-13.

The Forty-eighth Annual Meeting of the Society was held at the Ontario Agricultural College, Guelph, on Thursday and Friday, November 23rd and 24th, 1911. There were eight members present from a distance, as well as a large attendance of the faculty and students connected with the College.

During the first afternoon, the reports of the Directors on the insects of the year were read and discussed; papers were read by Dr. G. G. Hewitt on "Some Work of the Division of Entomology in 1911;" by Mr. L. Cæsar on "Insects of the Year in Ontario," and by the Rev. Dr. T. W. Fyles on "Notes on the Season 1911." Reports were read from the Montreal Branch, the Toronto Branch, the Librarian, Curator, and Delegate to the Royal Society.

In the evening a public meeting was held in the Massey Hall auditorium, which was well attended by members of the Society, students of the College and the Macdonald Institute, and visitors from the town. Dr. C. G. Hewitt gave a most interesting address on "Insect Scourges of Mankind," which was illustrated by many excellent lantern-slides. The chair was occupied by President Creelman of the College.

On the following day the Society met in the Museum of the Biological Department, where many interesting specimens were exhibited by the members. The Annual Address of the President, Dr. Walker, was then read, after which the election of officers for the ensuing year took place. In the afternoon the following papers were read: "Some Injurious Forest Insects at De Grassi Point, Lake Simcoe," by Dr. E. M. Walker; "Thrips Affecting Oats," by Dr. C. G. Hewitt; "The Stream," by Dr. T. W. Fyles; "A Hymenopterous Parasite of Hepialus thule," by Mr. A. F. Winn; "Injurious Insects of the Year, Macdonald College, Quebec," by

Mr. J. M. Swaine; "Insect Migration at Aweme, Man.," by Mr. Norman Criddle; "The Catalogue of Canadian Insects," by Dr. Hewitt; "Some Notes on Hepialus hyperboreus," by Mr. Horace Dawson; "Blister Beetles" and "The Entomological Record for 1911," by Mr. A. Gibson.

The Canadian Entomologist, the monthly journal of the Society, has been issued regularly each month. The forty-third volume was completed in December last; it consisted of 429 pages, and was illustrated by four full-page plates and many original drawings. The contributors numbered 59, and included writers in Ontario, Quebec, Manitoba, Alberta, Australia, many States of the Union, and the Hawaiian Islands.

Meetings of the Society were held during the winter months of 1911 and 1912 in the Biological Lecture Room of the Ontario Agricultural College. Before Christmas the meetings were held on alternate Thursday afternoons, and after New Year's joint meetings were held with the Wellington Field Naturalists' Club, weekly. The meetings were well attended by the staff and students of the Ontario Agricultural College and interested citizens of Guelph. The first meeting was devoted to observations by the various members, and during the rest of the season the following papers were read in order:—

"Observations in Algonquin Park," Prof. J. E. Howitt.
"Foul Broods of Bees," Mr. G. L. Jarvis.
"The Nursery Question," Mr. L. Cæsar.
"Mosquitoes," Mr. C. A. Good.
"The Economic Importance of Calosoma sycophanta," Mr. J. Noble.
"Insect Intruders in Indian Homes," Mr. G. J. Spencer.
"Birds in Relation to Insects," Mr. E. N. Calvert.
"Fall Collecting of Coleoptera," Mr. A. W. Baker.
"Insectivorous Birds," Professor T. D. Jarvis.

The reports of the Branches of the Society at Montreal and Toronto give evidence of much active work, meetings having been regularly held, and many papers read and discussed. It is with great satisfaction that the Council reports the renewal of activity of the British Columbia Branch, which has already outnumbered the other branches in the list of members, and is doing much valuable work.

The Council has to record with sorrow the death of one of America's foremost entomologists, Dr. J. B. Smith, who died of Bright's disease, on March 12th, 1912. Besides a number of important monographic works on various families of Lepidoptera, particularly the Nocuidæ, Dr. Smith was the author of several very excellent popular treatises on Economic Entomology, in which subject few men were his equal. His contributions to the Annual Reports of the New Jersey Agricultural Experiment Station, and his many economic bulletins are of the greatest value, and he is also widely known for his masterly work on the control of mosquitoes. He was an Honorary Member of the Entomological Society of Ontario and of many other learned societies, which have thus recognized the eminence of his scientific attainments.

It is also with profound regret that the Council has to record the loss of one of our Society's most active and enthusiastic members, the Reverend G. W. Taylor, who died of paralysis at Nanaimo, B.C., on August 22nd, 1912. Mr. Taylor was widely known for his work in Marine Zoology, in recognition of which the Dominion Government in 1905 appointed him a member of the Dominion Fisheries Commission for British Columbia. He was no less eminent in Entomology, as a student of the Geometridæ, and was a frequent contributor to the pages of the *Canadian Ento-*

mologist. He was also a Fellow of the Royal Society, and of the Zoological and Entomological Societies of England, and Corresponding Member of the Ottawa Field Naturalists' Club. Much of his character and personality is conveyed in the following words of the late Mr. James Fletcher: "Mr. Taylor is an indefatigable collector and a generous correspondent, who considers no trouble too much to make observations or secure specimens when specially desired. In his parish work he is painstaking, gentle and self-denying—always ready to help. A clear and forcible preacher and an earnest liver, who shows in his works that religion is not an accessory of everyday life, but an integral part of it."

Respectfully submitted,

E. M. Walker,
President.

ANNUAL REPORT OF THE MONTREAL BRANCH.

The 328th regular and 39th annual meeting of the Montreal Branch of the Entomological Society of Ontario was held on May 8th, at the residence of the President, Mr. G. A. Southee, 356 Durocher Street, Outremont.

The following report was read by the Secretary:—

Thirty-ninth Annual Report of the Council.

During the season 1911-12 eight meetings have been held, the average attendance being 7½. A meeting of Council was held in September to arrange a programme for the winter's meetings, which unfortunately could not be carried out. The following papers and addresses were given at the meetings:—

Address of Retiring President, Henry H. Lyman.
Some Effects of the Hot Summer on Insect Life, A. F. Winn.
Tachinid Parasites of Gypsy and Brown-tail Moths, J. D. Tothill.
Notes on Hepialus Hyperboreus, Horace Dawson (read by Secretary).
Little Journeys to Homes of Entomologists, H. H. Lyman.
Report on Annual Meeting at Guelph, A. F. Winn.
The Stilt Bugs, G. A. Moore.
The Catch from Dawson, Y. T., 1911, L. Gibb.
Further Notes on Types in British Museum. H. H. Lyman.
An Account of Visits to some U. S. Collections, F. H. Wolley-Dod.
A Miniature Insectary, A. F. Winn.
Sexual Differences in the Hemiptera, G. A. Moore.
The Determination of Sex in Lepidoptera, A. F. Winn.
Rye's Newest Moth (*Gortyna erepta*), Henry Bird (read by Secretary).
List of Lepidoptera from Yukon Territory, A. F. Winn.

We were again fortunate enough to have visiting entomologists at two of our gatherings, Mr. J. D. Tothill at the October one, and Mr. F. H. Wolley-Dod, of Calgary, in January, and both these gentlemen kindly addressed the meetings.

To the Library has been added a copy of Colonel Casey's Memoirs on Coleoptera, Parts I.—III. Owing to Mr. Gibb having left the city to reside in London, England, the cabinet has been temporarily removed to Mr. Lyman's residence.

A case of butterflies and moths has been prepared by Mr. Gibb for Lower Canada College, and, it is hoped, will interest some of the boys in the wonders and beauty of insect life.

The Branch is badly in need of additional members to share the work of keeping up the interest in our meetings and bringing specimens, notes and queries. An effort should be made to encourage boys who are inclined to hobbies of collecting to take up some group of insects.

Copies of several new works on Lepidoptera were shown at the meetings.

The report of the Treasurer shows a balance on hand of $74.98.

Respectfully submitted, on behalf of the Council,

A. F. Winn,
Secretary.

The chairman delivered his annual address, after which the election of officers for the ensuing year was proceeded with, resulting as follows: President, G. A. Southee; Vice-President and Librarian, G. Chagnon; Secretary-Treasurer, A. F. Winn; Curator, H. H. Lyman; Members of Council, G. A. Moore, E. C. Barwick, and L. Gibb.

The Secretary showed a box containing a series of about 30 specimens of *Colias philodice* to illustrate how interesting a representation of the varieties of a common butterfly may be.

Mr. Southee also exhibited a number of drawers of Lepidoptera.

The meeting then adjourned.

G. A. Southee, *Pres.* A. F. Winn, *Secretary.*

ANNUAL REPORT OF THE TORONTO BRANCH.

The 169th regular and 16th annual meeting of the Toronto Branch was held in the Biological Building, on Thursday, October 10th, the President, Dr. Walker, in the chair.

The annual report of the Secretary-Treasurer was read and approved. In the course of the year eight meetings were held; the average attendance was seven. Four new members were elected. The following papers were read:—

Nov. 9.—A Cosens, "Some Insects of the Season."
Dec. 14.—Dr. Walker, "Notes on Insects of the Season at De Grassi Point."
Jan. 11.—J. B. Williams, "Recent Theories on Mimicry."
Feb. 15.—C. W. Nash, "Insects in a City Garden."
Mar. 14.—Arthur Smith, "Insects in Folk-lore."
May 2.—Dr. Walker, "Work of Some Common Longicorns."
May 16.—Dr. Abbott, "Respiration of Birds and Insects."
June 14—A. Cosens, "Feeding Habits of the Cynipidæ."

The officers elected for 1912-13 were as follows: President, A. Cosens; Vice-President, Dr. Walker; Secretary-Treasurer, E. H. Craigie, 40 Leopold Street; Librarian, J. B. Williams; Council, Dr. Abbott, Messrs. P. Hahn, A. M. Patterson, S. T. Wood.

Respectfully submitted,

Arthur Smith, *Secretary.*

ANNUAL REPORT OF THE BRITISH COLUMBIA BRANCH.

The British Columbia Branch of the Ontario Entomological Society was reorganized on December 9th, 1911, after having lain dormant four or five years previous to this date. The following officers were elected: Hon. President, Rev. G. W. Taylor; President, Tom Wilson, (formerly Vice-President); Vice-President, G. O. Day, F.E.S.; Secretary, R. C. Treherne, B.S.A.; Advisory Board, Tom Wilson, G. O. Day, R. C. Treherne, W. H. Lyne, R. S. Sherman, and J. R. Anderson.

An excellent programme was arranged at the reorganization meeting, a copy of which was duly forwarded to Ontario and afterwards printed in the Annual Report of the Ontario Entomological Society, 1911.

A general summary of the papers was also forwarded at the same time and printed in the same report.

There is every intention to hold another meeting in a short time from now, the programme of which is at present in process of formation.

I am glad to say that the membership of the British Columbia Society has increased from about 24 to nearly 40 in the past year. A small bulletin was printed at the close of the meeting in December, 1911, and this has been freely distributed over the Province, with the result that a number of fruit-growers and farmers have become interested and have duly become members by payment of the annual subscription of $1.00.

Until a very short time ago it was intended to hold the annual meeting in Vancouver early in December of every year, but owing to the great distances members have to travel and the limited means of transportation in the Province, it has been deemed advisable to hold the meeting in January. It has not been definitely settled, but it is very probable that the annual meeting of the Society will be held in Victoria on the 9th and 10th of January during the week of the Agricultural and Horticultural Conventions. During this week delegates of the Fruit Growers' Association and members of Farmers' Institute meet together to discuss matters of interest. Consequently it would seem more desirable to hold the meeting then than in December, when such members as would be present can only be recruited from those living in the immediate vicinity of the point of meeting.

If this arrangement is acted upon, there will be no report from the British Columbia Branch from this Fall, or for publication in the Year 1912.

It would seem more desirable to meet in January of 1913 and forward the report of that meeting to the Ontario Society for presentation at their Fall meeting in 1913.

During the past year the British Columbia Society has been entirely financed by private subscriptions, all expenses of correspondence, of meeting and of publication of the small bulletin on the proceedings has been thus met. No Provincial grant has been allowed for maintenance thus far, but in view of the interest which the small bulletin created and is likely to create, it is to be hoped that a small Provincial grant will in time be forthcoming.

Respectfully submitted,

R. C. Treherne, *Secretary.*

CURATOR'S REPORT.

During the past year very few insects have been added to the Society's collection, but for this year we have the promise of a good number of specimens that are much needed, if the collection is to be at all representative of all the orders. We are at present very lacking in Diptera and Hymenoptera, but especially in Diptera. Any member who can spare named specimens of this order would be conferring a great favour.

The collection has been examined from time to time throughout the year, and the necessary measures taken to keep it in good condition.

Respectfully submitted,
L. CAESAR, *Curator.*

THE REPORT OF THE LIBRARIAN.

During the year ending October 31st, 1912, forty-seven bound volumes have been added to the Library, making the total number on the register 2,153.

Work on the card catalogue has been continued, and some further progress made. Much, however, remains to be done before there is a complete index to subjects.

The trustees of the British Museum, London, England, have very kindly presented the following books:—

"Monograph of the Culicidæ of the World," by F. V. Theobald, Vols. III and V.
"Synonymic Catalogue of Orthoptera," by W. F. Kirby, Vol. III.
"Illustrations of Lepidoptera," Parts VI. and IX., 4 Vols., quarto.

Among other additions to the Library may be mentioned the following:—

Newstead's "Monograph of the British Cœsidæ" in 2 vols.
Sanderson's "Insect Pests of Farm, Garden and Orchard."
Sanderson & Jackson's "Elementary Entomology."
Dr. Walker's "Monograph of the Genus Æshna (Odonata)."
Hugo de Vries' "Works on Mutation and Variation," 5 vols.
Enrio Reuter's "Palpen der Rhopaloceren" and "Morphology et Ontogenie der Acariden," 2 vols., quarto.
Comstock's "Spider Book."
Mrs. Comstock's "Handbook of Nature Study."

The Library continues to be much used by the Biological students and staff of the Ontario Agricultural College, and is of great assistance to them in their scientific pursuits.

Respectfully submitted,
CHARLES J. S. BETHUNE, *Librarian.*

REPORT OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO TO THE ROYAL SOCIETY OF CANADA.

REV. THOMAS W. FYLES, D.C.L., OTTAWA.

The Entomological Society of Ontario has of late years had its offices in the Ontario Agricultural College at Guelph. In that institution it enjoys many privileges, and has abundant opportunities for impressing the agricultural students and teachers-in-training with the importance of Nature Studies. There is its very valuable library, and its extensive collections of biological specimens. One of the founders of the Society, the venerated Dr. Bethune, is Professor of Entomology and Zoology on the College staff.

The Society held its forty-eighth annual meeting on the 23rd and 24th of November last, under the presidency of Dr. Edmund M. Walker, Lecturer in Zoology in the University of Toronto. The following is a list of the subjects brought under the notice of the meeting. The papers will appear in full in the forthcoming Annual Report of the Society:—

REPORTS ON THE INSECTS OF THE YEAR:

- Division 1. Ottawa District, Arthur Gibson.
- Division 2. Orillia District, C. E. Grant.
- Division 3. Toronto District, A. Cosens.
- Division 4. East Toronto, C. W. Nash.
- Division 7. Niagara District, R. C. Treherne.

"Some Work of the Division of Entomology," C. G. Hewitt.
"Insects of the Season in Ontario," L. Cæsar.
"Notes on the Season of 1911," T. W. Fyles.
"Insect Scourges of Mankind," C. G. Hewitt.
Annual address of the President, E. M. Walker.
"Some Injurious Forest Insects at De Grassi Point, Lake Simcoe," E. M. Walker.
"Thrips Affecting Oats," C. G. Hewitt.
"The Stream," T. W. Fyles.
"Blister Beetles," A. Gibson.
"A Hymenopterous Parasite of Hepialus Thule," A. F. Winn.
"Injurious Insects of the Year, Macdonald College, Ont," J. M. Swaine.
"Catalogue of Canadian Insects," C. G. Hewitt.
"Some Notes on Hepialus Hyperboreus," H. Dawson.
"The Entomological Record," A. Gibson.

The *Canadian Entomologist,* the Society's monthly organ, has now reached the 44th year of its publication. The volume for 1911 contains 429 pages. It is illustrated with 4 plates, and 28 figures in the text. Its contributors were 59 in number, one each from Honolulu, Hawaii, and Brisbane (Australia), and the remainder from various parts of Canada and the United States of America.

Many new species are described in the volume, and much information is given on the distribution, habits, and life histories of insects in all orders.

Reviews of books and pamphlets of recent issue have been given promptly, thus calling attention to the work of Entomologists outside of the sphere of magazine articles.

The whole respectfully submitted,
THOMAS W. FYLES.

ANNUAL ADDRESS OF THE PRESIDENT.

EDMUND M. WALKER, B.A., M.B., TORONTO.

I have the honour of welcoming you to the 49th Annual Meeting of the Entomological Society of Ontario and the sixth meeting held at Ottawa.

It is nine years since one of our annual meetings has been held at a distance from the Society's headquarters in Guelph, and although we regret that many of our Guelph friends are unable to be with us on this occasion, we rejoice to see the faces of other members who would have found it impossible to attend the meeting had we met elsewhere than in Ottawa, and we greatly appreciate the kindness of our Ottawa friends, who have spared no efforts to make our visit a pleasant and interesting one.

It is good for us, and for the welfare of our Society, to change our place of meeting from time to time. It will give to many who would otherwise find it difficult to attend our meetings, the opportunity of doing so, and to our Society itself and the aims and objects of its work, it will help to give more of that public recognition which they undoubtedly deserve.

It has usually been the custom on these occasions for the President to review the work of the year, or to discuss the recent progress of our science; but I find that this rule has not been strictly observed, and I feel, therefore, that I am not violating a time-worn custom in departing from this practice and speaking to you for a little while upon a subject which has as yet received but little attention in Canada, but which should, I think, be of some interest to all entomologists.

THE FAUNAL ZONES OF CANADA.

I refer to the geographical distribution of insects in our country, or rather to that of the Canadian fauna in general, for the greater part of Canada is still almost a *terra incognita* from an entomological standpoint, and it is therefore a necessity to refer also to other groups whose distribution is better known than that of the insects, in order to form a definite idea of the faunal areas into which our country is divided.

We have all seen the map of the Faunal Zones of North America, which was published in the May number of our magazine, and no doubt all who have seen it realize in a general way that the differently coloured areas represent zoological zones, and that the fauna of each zone has certain particular characteristics. But, as far as I am aware, no explanation of these characteristics has appeared in any entomological publication, so that it may not be without interest to consider the map for a little while, particularly as this map is to be used in connection with the catalogue of Canadian insects, the distribution of each species being referred to under the names of the various zones inhabited by it.

Some facts of zoogeography are familiar to all. Everyone knows that countries of widely different climatic conditions differ more or less widely in their plant and animal inhabitants, and that, generally speaking, localities remote from one another also exhibit marked points of distinction in their flora and fauna. A very little observation, however, will show that many other factors besides those of climate and distance are concerned in the distribution of life. Thus, zoologically, there is more difference between Australia and New Zealand than there is between England and Japan, and more between the Pacific slope in British Columbia and the foothills of the Rockies than between Labrador and the Mackenzie River country. Barriers of any kind, such as seas, mountain chains, deserts, etc., if sufficient to prevent free communication between the faunas of adjacent districts, are invariably associated with more or less marked differences in the faunas thus separated. The degree of difference depends in large measure upon the length of time during which the faunas have been separated, so that here again we have another factor, the historic factor, *i.e.,* the geological history. Indeed, the present distribution of animals is chiefly the outcome of their geological history. Now, geologists have shown that the various classes of animals now living are of different ages, some of much more recent origin than others. Their dispersal over the earth's surface has thus taken place at different periods of the earth's history, so that this present distribution has been influenced in various ways by their past history. Then again, the means of dispersal possessed by animals is almost unlimited in its variety, and is another important factor in determining the distribution of the species. The water-snails are largely dependent upon the river system that they inhabit, different river-systems usually have distinctive faunas, while terrestrial forms are practically uninfluenced by this factor. Strong, high-flying insects and birds will not be deterred by many barriers that would be prohibitive to flightless forms and weak fliers.

For such reasons of these it is impossible to construct a map of the zoological regions of the world or of any country that will suit all groups of animals equally well. There have been, however, certain events in the world's history that have had a vast effect on the distribution of life in general over immense areas of land. As far as Canada is concerned, the great geological events of comparatively recent date have been the Ice Age and the existence of former land-bridges connecting North America with Asia and Europe.

The existence of a land-bridge across Bering's Sea in early Glacial times is supported by many facts of geology and zoogeography. The close resemblance between the fauna and flora of North-western North America and North-eastern Asia has often been remarked upon, and it is generally admitted that a large proportion of the species of both plants and animals inhabiting the North-west originally came from Asia over this land-bridge. Many of these species have since spread eastward and now range across the continent, but the number of such species is noticeably greater in the West, particularly in Alaska, than elsewhere. It is noteworthy, too that such species, among the mammals at least, are absent from Newfoundland, which was separate from the continent even at the time of the invasion of animals from Asia. Thus the moose, wapiti and barren-ground bear, which are of Old World stock, range across Canada, but do not occur in Newfoundland, while the mountain sheep, whose nearest relatives are also Asiatic, do not range east of the Rockies, even as a fossil. The same is true of the butterflies of the genus Parnassius and many other insects.

The existence of a land-bridge connecting North America and Europe by way of Greenland, Iceland and Scotland, is also supported by the fact that the fauna and flora of Greenland are mixtures of American and European species, some of the latter, such as the European garden-snail, *Helix hortensis,* ranging down the east coast of North America as far as Maine, but not penetrating westward. The noctuid moths, *Anarta schoenherri* and *A. lapponica,* occur in Scandinavia, Greenland and Labrador, while *A. melanopa* is found in Colorado, the White Mountains, Labrador, Scandinavia, Scotland and the Alps.

These former land connections existed at a time when conditions were more favourable for life in the north than they are at the present time. Hence a large number of species, which formerly inhabited the far north have since been driven southward into more hospitable latitudes, and no longer occur in the Arctic regions.

On the other hand, there is no doubt that, at some time in the past, arctic conditions as we now understand them existed much farther south in North America than they do at the present time. We find isolated remnants of arctic and subarctic faunas and floras hundreds of miles to the south of their present general area of distribution. The summit of Mount Washington supports a number of species of plants and animals which occur elsewhere only in the Arctic regions. *Oeneis semidea* is the classical example among insects. The White Mountain colony of this butterfly is separated by a thousand miles from its nearest brethren in Labrador.

The presence of these southern remnants of the Arctic fauna and flora is usually attributed to the influence of the Glacial Period. This was a period during which it is commonly believed that almost the whole of the northern half of North America as well as a large part of Europe and Asia became covered with an almost continuous sheet of ice, and that the fauna and flora of the region thus covered were either exterminated or pushed southward by the advancing ice-sheet. On the final retreat of the ice-sheet northward to the Arctic regions, the country was repopulated with life from the south, chiefly from those species which had been driven southward during the period of advancement. First came the Arctic fauna and flora, followed by those of the succeeding life-zones, until the present distribution of life was established. During the northward movement remnants of the arctic and subarctic faunas were left behind wherever the conditions were suitable for their existence, such as on mountain-tops, in cold bogs, etc.

This view is very plausible, but there is much biological evidence to show that the fauna and flora of the glaciated regions never occupied the country south of the drift or glaciated area, and that the climatic conditions in this area were more favourable for the existence of life during the so-called Ice Age than they are at present.* The existence of glaciers does not depend upon intense cold, but chiefly upon a copious precipitation in the form of snow, which, of course, requires a fairly low temperature in the region where the glacier is formed, but also demands a considerable degree of warmth in the surrounding country. The glaciers of Alaska occur chiefly in the warmest part, the southern shore, whereas the cold interior is devoid of them. The extensive glaciers of the Ice Age were probably due to the presence of the land-bridges connecting North America with Europe on the east and Asia on the west. The Arctic Ocean was thus isolated, and the temperature of the Atlantic and Pacific considerably elevated, thereby modifying the climate of the Arctic regions on both sides of the continent and bringing about the conditions necessary for the formation of glaciers.

Species such as the snail *Helix hortensis* and the wood-louse *Oniscus asellus*, whose entrance into North America is traceable to the north-eastern land-bridge from Europe, have not yet reached the higher parts of the White Mountains, though they occur in Northern New England, and the origin of the Arctic element in the fauna of the White Mountains is probably of much earlier date than the Glacial Period. There is no doubt, however, that the presence of these relics of the Arctic fauna does indicate that at some period an Arctic climate did prevail over a large part, if not the whole, of Canada, and the Northern States, and that, with the gradual increase of temperature which followed, species adapted to a colder climate were exterminated or driven northward, stragglers remaining behind wherever conditions were favourable to their existence. These isolated colonies of northern forms occur not only at high altitudes, but also to a smaller extent at quite low levels, *e.g.*, in bogs, where the soil is wet and poorly drained, and thus colder than the surrounding country. Such restricted areas, inhabited by northern species, are termed "boreal islands."

Let us now turn our attention to the map of the faunal zones of North America.

This map was prepared by the U. S. Biological Survey, and is mainly the work of Mr. C. Hart Merriam, an eminent authority on the Mammalia, upon the distribution of which the map is chiefly based. Perhaps the first thing on it that is apt to strike our attention is the transverse arrangement of the zones across the continent. This is because the factor of temperature has been regarded as the controlling one in defining the distribution of the Mammalia. It has been remarked by several zoologists, however, that laws of temperature control do not define transcontinental zones of primary importance zoologically. They emphasize the secondary, not the primary facts of distribution. Thus, in our map, we have

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*See R. F. Scharff, "Distribution and Origin of Life in America," London, 1911.

California and Mexico divided into the same zones as the Atlantic State, in spite of vast and important differences in their fauna and flora. In regard to temperature, these zones are comparable in the east and west, but in little else. They would be more properly regarded as homologous subdivisions of quite different zoogeographical provinces. For the purpose of our catalogue, however, in which we indicate the distribution of species by reference to political divisions, as well as to faunal zones, the map is a convenient one and probably better suited to the purpose than any other map as yet published.

It may, therefore, be of interest to examine the map for a little while and consider the characteristics of the various zones.

The continent of North America is seen to be divided into two main regions, a northern or Boreal Region and a southern or Austral Region. The Boreal Region includes the greater part of Canada as well as the northern parts of Europe and Asia, and gives off southern extensions along the mountains on both sides of the United States; the Austral Region occupies the greater part of the United States, part of Mexico, and a small part of Canada. Part of the Tropical Region is also included on the map, embracing Central America, the West Indies, and parts of Southern Mexico and Southern Florida.

The Boreal Region in North America is divided into three zones: the Arctic, Hudsonian and Canalian Zones. The Arctic Zone is the region north of the limit of trees, including the Barren Grounds or Tundra of North America and Siberia. It is also represented upon the mountains farther south, wherever these are elevated above the tree-line.

The plants and animals of this region, particularly of the truly arctic portions, are largely circumpolar, or represented by very nearly allied species in the northern parts of Europe and Asia.

This is due to the free communication that formerly existed between these regions by means of the land-bridges already mentioned. The mammalian fauna includes a number of species peculiar to this zone, such as the polar and barren-ground bears, musk ox, barren-ground caribou, arctic fox, arctic hare, lemming, etc. Not much is known of the insects, but mention may be made of the satyrid butterflies of the genera Oeneis and Erebia, the dwarf fritillaries of the genus Brenthis, certain species of Colias, the noctuid moths of the genus Anarta and the grasshopper *Melanoplus borealis,* a near relative of our common red-legged grasshopper. There are also some charteristic beetles, besides many species of various orders which also occur farther south.

South of the Arctic Zone is an immense belt of coniferous trees, stretching obliquely across the continent from Nova Scotia, Newfoundland and Labrador to the Northern parts of the Great Lakes and Hudson Bay, and thence northward of the Great Plains to the Pacific Coast, extending north-westwardly to the Mackenzie River Basin and southwardly into the north-western United States, where it is continued along the mountains as a series of irregular, more or less broken areas. It is also continued southwardly along the Appalachians to North Carolina. This great forest region comprises the other two faunal zones of the Boreal Region, viz., the Hudsonian and Canadian Zones.

The Hudsonian Zone is a region of more or less scattered and stunted trees, occupying the northern part of the Boreal Region. It is a transitional region between the treeless Arctic Zone and the densely forested belt south of it, which constitutes the Canadian Zone. Except towards its southern boundary and in its mountainous western portions, this forest belt is composed of only eight species of trees, the black and white spruce, jack-pine, tamarack, balsam fir, paper birch, balsam and aspen poplar. Other species of trees as well as other plants and animals appear in the west, particularly on the Pacific Slope, this part of the country belonging, properly speaking, to a different faunal region, as will be explained more fully later. Except for this western section, however, the Canadian and Hudsonian Zones are remarkably homogenous throughout their entire extent, both in their flora and fauna and, like the arctic zone, though to a relatively smaller extent, they share many genera and even species with the northern parts of Europe and Asia.

These two zones form a region of muskegs, peat-bogs and countless lakes of poor drainage, and the bog-plant society, composed of such plants as sphagnum-moss, sundews, pitcher-plants, cranberries, and other heath-plants, are very characteristic. It also constitutes the great fur-bearing region of North America, and among its characteristic mammals are the moose, woodland caribou, wapiti, black bear, Canada lynx, pine marten, etc. In the west we have also the various species of mountain sheep, the mountain goat, and the grizzly bear.

The butterfly genera mentioned as characteristic of the Arctic region also occur commonly here, together with a number of other forms, among which are several of our commoner members of the Vanessa group, such as *Euvanessa antiopa, Aglais milberti, Eugonia j-album, Polygonia faunus, P. progne,* and *Vanessa cardui.* All of these occur also in the Old World, or are represented by nearby allied species. The dragonflies of this region are also very closely related to those of Northern Europe, nearly all of the genera and several species being common to both hemispheres. The most characteristic genera are *Cordulia, Somatochlora,* and *Leucorrhinia,* the first two consisting of beautiful, swift-flying forms of dark metallic greenish coloration with emerald green eyes, the latter of smaller black species, with black and yellow bodies and pure white faces. The little red dragonflies of the genus Sympetrum and the large blue and green spotted forms belonging to the Aeshna are also very abundant in this zone. All these genera are represented in Europe and Asia by closely allied species. Leconte has also pointed out similar characteristics in the Coleoptera, and it is also true, though to a less extent, in the Orthoptera, and probably in a greater or less degree of all the orders of insects as well as of other classes of animals.

Whereas the forests of the Boreal Region are of the coniferous type, those of the Austral Region are of the broad-leaved or deciduous type, comprising the oaks, maples, elms, hickories, etc. This region also includes three zones, the Transition, Upper Austral, and Lower Austral. It is also divided into an eastern or humid section and a western or arid section. In the opinion of many zoologists, these eastern and western sections represent different faunal centres of distribution and should not be united into one region. Certainly among the insects there is much to support this view. In the Orthoptera, for instance, there are many genera and hosts of species in the dry arid parts of the Western Plains and the Pacfic Slope which have no near relatives in the east, and there are many eastern forms whose area of distribution ends at the Rocky Mountains or which are confined to the wooded country east of the Great Plains.

Similar statements may be made of the beetles, butterflies and dragonflies, and, in fact, of the Class Insecta in general. Many species seem to have had their origin in the south-western states or in Mexico and to have spread from this centre of distribution to the north and east.

Of the Upper Austral Zone only a very small portion of the humid section or

Carolinian Zone is represented in Canada. This is a strip of territory along the North Shore of Lake Erie from the Niagara to the St. Clair River. The mild climate of this district is due to the modifying influence of the Great Lakes by which it is partly enclosed. Here we have a fauna and flora more like that of Northern Ohio and Southern Pennsylvania than that of most parts of Canada. The coniferous trees form a very small part of the forest growth, while the deciduous trees include many species not found in a wild state in any other part of the country, such as the tulip, chestnut, sycamore, walnut, papaw, sassafras, a number of oaks and hickories, and, on Pelee Island, the honey-locust and the Kentucky coffee-tree. The same is true of the fauna and notably so of the insects, for so many of these are dependent on particular food-plants. Among the butterflies, *e.g.*, there are several Papilios which are practically restricted to this Zone, viz., *P. thoas, ajax, troilus* and *philenor,* and other species such as *Zerene caesonia, Eurema lisa, Euptoieta claudia, Basilarchia astyanax* and *Junonia caenia.* Many species of moths, notably among the genus Catocala, are also restricted to this section of Ontario. The Orthoptera show a great increase in number of species here as compared with other parts of Ontario. The green grasshoppers and katydids are particularly numerous. Eight species of Orchelimum and five of Xiphidium occur here, whereas north of Toronto only one species of Orchelimum and two of Xiphidium occur. The true Katydid (*Cyrtophyllus perspicillatus*), the Oblong-winged Katydid (*Amblycorypha oblongifolia*), the Mole-cricket (*Gryllotalpa borealis*), the Shield-back Grasshopper (*Atlanticus pachymerus*) and many other species occur nowhere else in Canada except here. Other orders of insects are similarly represented by numerous additional species, while there is an absence of many of the forms that are common in the northern coniferous forests. North of the Upper Austral Zone we pass into the Transition Zone, which is simply the territory where the Boreal and Austral Regions overlap and there is an intermingling of types from both regions.

The humid or eastern division of this zone is also known as Alleghanian Zone. It includes parts of Nova Scotia and New Brunswick, a small part of southern Quebec and the greater part of Old Ontario. The forests are mixtures of the deciduous and coniferous types. The oaks and hickories are greatly reduced in variety, the prevailing hardwoods being the maples, elms, beech, birch, and basswood. Hemlock, red and white pine and white cedar are also abundant. In the southern part of the Transition Zone we find extensions of the more restricted austral fauna and flora in sheltered localities, such as river valleys and southern slopes, and it is often in such places that we find the northern limits of austral types. Thus, in Ontario the chestnut and walnut occur as far north as Oakville, while the sycamore and sassafras reach Toronto in the Don and Humber valleys. A number of austral insects also find their northern limit in this vicinity.

On the other hand, boreal conditions are met with in the Transition Zone, in bogs, particularly sphagnum bogs, these constituting the boreal islands that have already been alluded to. In such bogs the vegetation and the insect life, too, are decidedly more northern than that of the surrounding country. The trees are largely tamarack, black spruce and willows, and the bog-plant society in general consists of the same species as occur in the peat-bogs of the Canadian and Hudsonian Zones. Similarly, bogs in the Upper Austral Zone are largely occupied by species of the Transition and Boreal Zones.

The arid or western division of the Transition Zone is fairly extensive in

Canada, including, according to our map, practically the whole of the prairie country as well as the semi-arid district in the southern part of the interior of British Columbia. Part of the humid region on the Pacific Slope is also included in this zone, though the fauna and flora of this region are extremely different from that of the prairies.

To the present writer it seems that the northern boundary of this zone is placed too far north in the Prairie Provinces as compared with the corresponding boundary in Ontario. This seems to be true at least in regard to the Odonata and Orthoptera, as I have received from within the limits of the Transition Zone in Manitoba and Saskatchewan some very decidedly boreal species which do not appear to occur in Ontario south of the Canadian Zone. It may be noted in this connection that the mean July isotherm of 65 deg. F. corresponds fairly closely to the southern boundary of the Boreal Region in the Eastern Provinces, but does not run so far north in Manitoba and Saskatchewan.

In the arid district of the Transition Zone, there are certainly many species of both plants and animals which are common to the Transition Zone of the East, but these are mostly boreal species of transcontinental distribution, and there is but little in the austral element of the two regions to warrant their inclusion in the same zone. The physical conditions of the western prairies and eastern forests are, however, so unlike that it is somewhat difficult to compare them. In the Orthoptera, most of the austral species are of south-western origin, the Carolinian element being decidedly lacking.

Before closing this brief survey of the faunal zones of Canada, we must not fail to make mention of the conditions met with in British Columbia. The composition of its fauna, however, is too little known to warrant any positive statements concerning it. Though most of it is included in Merriam's Boreal Region and in the great transcontinental forest belt, most of the trees belong to different species from those of the eastern part of this region, and similar statements could probably be made of any group of plants or animals inhabiting it. The fauna and flora of this region seem to have entered it primarily from two directions, viz., from the south-west and from Asia. The bulk of the species seem to have entered from the Rocky Mountains and Pacific Coast south of the Canadian border, and many of these have decided Californian and Mexican affinities. On the other hand, there are many species of distinctly Asiatic type. which do not occur on the eastern side of the continent. The presence of such forms, particularly in the Alaskan region, is important evidence of the existence of a land-bridge across Bering Sea in early glacial times. To a limited extent this western region has also been invaded by north-eastern forms.

Finally, let me call your attention to the close relationship that exists between the boundaries of the faunal zones of our map, as far as Canada is concerned, and the mean isothermal lines for July. According to Merriam, the southward distribution of northern species is determined by the mean temperature of the hottest time of the year, which should not be very different from the mean temperature of July. Thus the present map is essentially a map of temperature zones, but not one of primary zoogeographical provinces.

In conclusion, I should like to impress upon all collectors the value of keeping in mind the standpoint of geographical distribution, while on their collecting trips. Not only will the data for a proper understanding of the problems of zoogeography be more thoroughly accumulated, but the collector will experience new delights in the course of his wanderings, and will feel more keenly than ever the rare pleasure of collecting in a new locality.

REVIEW OF ENTOMOLOGY RELATING TO CANADA IN 1912.

C. Gordon Hewitt, D.Sc., Dominion Entomologist, Ottawa.

It has been my custom in addressing the Society on previous occasions to briefly relate the more important developments which have taken place in connection with the work of the Division of Entomology of the Experimental Farms Branch of the Dominion Department of Agriculture, located at the Central Experimental Farm, Ottawa.

This year we are fortunate in having with us at our meetings a number of the field officers of the Division of Entomology who have been carrying on investigations in different localities, and they will be able personally to communicate to you the results of their investigations. I wish to consider broadly, for a short time, certain matters affecting Canadian entomology, which have arisen during the past year. I shall, therefore, divide my address into three parts, and I shall consider how our problems have been affected by International, Imperial and Canadian developments.

As representative of the Canadian Government and also as representative, together with Mr. Henry H. Lyman, of this Society, I had the privilege of attending the International Congress of Entomology which was held at Oxford in August. An account of this meeting has been published by me in the current (November) issue of "*The Canadian Entomologist,*" and therefore I need not take up the time of the meeting with a description of the various interesting and important aspects of this international meeting.

I would like, however, to refer to two matters which came up for discussion at the Congress, as I think they will be of special interest to the members of the Society. As might be expected, the question of nomenclature was prominent in discussion, having been introduced at the instigation of the Entomological Society of London, and after an interesting and useful discussion it was finally decided to appoint international and national committees to deal with this very vexed question of nomenclature. Each of these national committees would refer its important inquiries to the International Committee for its decision, and the International Committee would consult with the International Committee on Zoological Nomenclature, which is the final committee of appeal on all questions of zoological nomenclature. It was felt, and rightly so, that entomology was not adequately represented on the International Committee of Zoological Nomenclature in view of the fact that insects form by far the greater part of the terrestrial fauna, this lack of representation is admittedly unfair and has been responsible to some extent for the formation of a committee of the International Congress of Entomology to deal with these questions of nomenclature.

To my mind one of the most important considerations is the question as to what would happen in the event of disagreement between our International Committee on Entomology and the International Committee on Zoological Nomenclature, and I was very pleased to receive publicly from Dr. Karl Jordan, the Secretary of the Congress, the assurance that in cases of such disagreement the findings of the International Committee on Nomenclature would prevail. I believe that the formation of these national committees and the International Committee will be productive of much good in deciding disputed questions.

Among the many interesting, suggestive and valuable papers dealing with the problems of economic entomology none was productive, to my mind, of so interesting a discussion as a paper read by Mr. Rogers of the British Board of Agriculture, on the question of legislation and the control of insect pests. As a result of this discussion a resolution was moved in support of the proposed formation by the International Institute of Agriculture at Rome, of an international commission to deal with the broad question of the prevention and spread of insect pests, and this resolution was unanimously adopted by the Congress.

This brings me to the second part of my address and to a consideration of the Imperial aspect of entomology. During the past year the Colonial Office and the various self-governing Dominions and colonies have had under consideration a scheme for the formation of an Imperial Entomological Bureau. A scheme was submitted last year, and during my visit to England at the beginning of the year I consulted with the Entomological Research Committee of the Colonial Office in regard to this scheme, which appeared to us to be too restricted in its character. The idea was to assist the self-governing colonies and dominions in preventing the spread of insects within the empire, by collecting and distributing information from all parts of the empire with regard to the prevalence and distribution of insect pests.

In case of Canada, however, we obtain the greater part of our natural products from non-British countries, and consequently we have to keep ourselves informed of the prevalent insect pests in those countries. We, therefore, felt that if the collecting of this information, relative to injurious insects, was confined to the countries within the British Empire we should derive very little benefit from it.

To work out a scheme satisfactory to all the Governments concerned, therefore, the Colonial Secretary took advantage of the International Congress of Entomology and called a conference at the Colonial Office of the entomologists and representatives of the various self-governing dominions and colonies. This conference took place in August and it is a matter of very great gratification to us to find that our proposal for a more extensive scheme met with the unanimous approval of the representatives at this conference, and the scheme which was worked out at the conference has now been submitted to the various governments for their approval and adoption. It is proposed to form in connection with the Colonial Office an Imperial Entomological Bureau which would be maintained by contributions from the dominions and colonies, and also from the Colonial Office. Its functions are mainly three: First, it will collect, not only from the colonies, but also from non-British countries, information regarding the occurrence and distribution of injurious insects. This information will be filed for purposes of reference, so that any colony which may be desirous of importing or may be actually importing vegetation or other natural products from another country may inform itself, by applying to the Bureau, what pests it is likely to import on such commercial products, and may thus determine whether in its own interests it is advisable to protect itself by legislation, or by other means against the introduction of dangerous insect pests. The great benefit which will accrue from this function of the Bureau will be obvious to you all, and it will be an especial benefit to those colonies whose entomological services may not be so well organized as others. In addition to the collection and distribution of this information the Bureau will also undertake the identification of insect pests for the various colonial entomologists, and with the co-operation of, and the proximity to, the British Museum of Natural History with its immense and valuable collections, the Bureau will be able to render valuable services to the colonies in this regard. Not the least important of the Bureau's activities will be the publishing of a monthly journal for distribution to the colonies, which journal will contain summarized abstracts of current literature relating to the control and eradication of insect pests. With the increase of entomological literature and with the decrease of opportunity which entomologists have with their increasing duties to keep themselves acquainted with all that is being published on economic entomology, the value of a journal of this nature cannot be overestimated, and it will be especially appreciated by and of great value to those entomologists working in countries where they have not access to scientific libraries and where scientific literature is conspicuous by its absence. To them, most of all, will such a journal be useful. I look forward very much to this Imperial Bureau becoming a powerful factor in the general campaign against insect pests and their spread.

Turning from Imperial matters to Canada, I will briefly refer to the various developments in entomology in this country during the past year. One of the most important extensions of the work of the Division of Entomology has been the establishment of field laboratories, to the proposed establishment of which I referred in my address twelve months ago. These stations are now an accomplished fact and by means of their establishment we have been able to carry on important investigations in a wider field. During the past year field work has been carried on in Nova Scotia, New Brunswick, Quebec, Ontario (two stations) and British Columbia, and most of our field officers carrying on the work at these stations will give brief accounts of their respective investigations at this meeting. I need not, therefore, refer to them more fully.

Two other branches of our work have been extended, and assistant entomologists have been appointed to devote their special attentions to these branches. Mr. J. M. Swaine was appointed last December to take charge of the work on forest insects, and during the past summer he has made very marked progress in this work which has been so long neglected in Canada, but which now needs all the attention we can give it if the conservation of our forest is to be studied in its necessarily broad manner. Mr. Swaine will give an account of his season's work and his visits to Manitoba and other parts of eastern Canada. I am also pleased to announce that by the appointment of Mr. F. W. L. Sladen we shall be able to give to apiculture the attention which it deserves, and we are proposing to carry on experimental work in queen breeding and other branches which are essential for the prosperity and extension of bee-keeping in this country. A long, intimate and practical experience in bee-keeping in England has made Mr. Sladen unusually well qualified for this work, and we are fortunate in having so distinguished a Fellow of the Entomological Society of London with us permanently. Mr. Sladen, in addition to his studies of the honey bees, has made a life-long study of the Bombi, and he will give us to-night an account of some of his work.

The inspection work under the Destructive Insect and Pest Act is now well organized, and the amount of work it entails upon the Division will be realized by the fact that the last importation season about 4,000,000 plants were inspected. One instance alone which I am mentioning will indicate the value of this inspection work. Mr. R. C. Treherne, our officer in charge of our work at Vancouver, discovered in a shipment of trees from Japan a *Thuja* on which no less than eight egg masses of the Gipsy Moth were found, and by the time these reached Ottawa, hundreds of the larvae had emerged. Such a discovery as this needs no comment. The field work in Nova Scotia and New Brunswick which consists in scouting the infested and likely-to-be-infested areas, was completed in May. We found that the area in New Brunswick had increased enormously, although the infestation was very lightly distributed. In Nova Scotia the area and infestation were about the same.

During the past year also we have continued and extended the work of importing parasitic enemies of our worst insect pests. For the purpose of importing the parasites of the Larch Sawfly, the chief of which is the Ichneumon, *Mesoleius tenthredinis,* I visited the English Lake District in January and discovered a locality where I found the cocoons of the Larch Sawfly well parasitized. Arrangements were made for the collection of the parasitized cocoons and these were shipped to us in the spring. Mr. Swaine then took them with him to the Riding Mountain Forest Reserve in Manitoba where we are attempting to establish them. Our reason for establishing them on this western point is that this point appears to be the present western limit of the spread of the Sawfly. I should say in passing that I previously referred to the chief Ichneumon parasite of the Larch Sawfly as *Mesoleius aulicus,* but it has since been found that the species which I studied was a new species to which the name *Mesoleius tenthredinis* has been given.

Turning from our work in the Division of Entomology to provincial matters, it is a matter of great gratification to us all to be able to record the development of entomology in the Provincial Departments of Agriculture as evidenced by the appointment of entomologists in three provinces. In British Columbia, Mr. W. H. Brittain has been appointed as Plant Pathologist and Entomologist, and we hope that he will be able to find time to devote to insect pests as well as plant diseases, although both offer enormous fields for investigation in British Columbia. In Nova Scotia Dr. Robert Matheson, late of Cornell University, has been appointed Provincial Entomologist, and we are delighted to have succeeded by this appointment in bringing back so hard working an entomologist to his native country. Mr. Caesar has been appointed Provincial Entomologist for Ontario, although I understand that the appointment has not yet been officially confirmed. His colleagues and friends will be glad that his services for Ontario have thus been officially recognized. With these provincial appointments and the prospect of co-operation between the Division of Entomology at Ottawa and the Provinces, I look forward to a rapid and useful extension of our work in the near future. We have an enormous field to cover and we shall still have to spread ourselves out in order to touch even the borderland of what lies before us.

Before concluding my address, I shall like on behalf of the Department here to extend to you all a most cordial welcome. It is a source of unusual pleasure for us to see gathered together representatives from so many provinces. We have representatives from Nova Scotia, New Brunswick, Quebec and Ontario, and papers will be read from members in Manitoba and British Columbia who are unable to be with us. The coming together in this way of entomologists from so wide an area cannot but result in discussion which will be of the greatest value to all of us in our work. I am sure that we shall all go away from these meetings feeling that our deliberations have enabled us to advance in our work, so increasingly important in helping on the development and increasing the productivity of this great country.

THE TEACHING OF ENTOMOLOGY IN OUR AGRICULTURAL COLLEGES.

PROF. WM. LOCHHEAD, MACDONALD COLLEGE, QUE.

In the discussion of this subject two points must be clearly kept in view: first, the curriculum of the colleges, and second, the object of the courses in Entomology.

With regard to the first point, it should be borne in mind that the curriculum of our Canadian Agricultural Colleges differs from that of Agricultural Colleges in the various States of the republic to the south of us, in that our colleges for the first two years arrange their courses in such a way that the students are able to apply directly the information received on their home farms on their return. Accordingly, considerable attention is given during the first two years to the study of live stock, agronomy, horticulture, and dairying, where methods and practices and the general principles underlying them are emphasized. But in order to deal effectively with the general principles, some knowledge of chemistry, physics and biology is necessary; hence those sciences are studied with the object of bearing directly on agriculture.

The presentation of the subject matter in the sciences must necessarily be different in a two-year course from that in a consecutive four-year course, which prevails in the Agricultural Colleges in the States. Our Canadian colleges may justly pride themselves upon the excellent adjustment of their curriculum to the needs of their students. Results, I believe, have justified the wisdom of the establishment of the Diploma Course and the Degree Course, up to the present time at any rate. Future developments may demand a continuous four-year course for the entrance for those who desire a degree in preparation for teaching, investigation, etc.; but I believe the Diploma Course will always be a necessity.

In view of the fact that our curriculum of the first two years is designed especially for the Diploma Course, it is evident that entomology must be presented in such a way that primarily it will help the young farmer to protect his crops. At the same time we should not forget that entomology is a cultural subject, and should be a means of training the young men to observe carefully, to experiment, and draw conclusions. It should also give them an added interest in the great world of nature about them, and enable them to get a glimpse into the wonderful web of life with all its marvellous inter-linkages. This phase of the subject is, in my opinion, one of the most important from the standpoint of citizenship. From a study of the insect world it is an easy matter to direct their attention to inter-linkages in the social world.

Another factor must not be lost sight of, and that is the short time available for the study of entomology. We all know how crowded the curriculum is on account of the number of valuable courses that must be given.

Now the difficult problem for the instructor is to determine the scope of his course—what he should include and what he should leave out.

In my judgment the main attention should be paid to the chief insects that injure the staple crops, by a concise study of their appearance, life-history, and methods of control. These studies, however, should be preceded by studies on the structure of insects, both external and internal, and on the classification into orders. Some attention should also be given to beneficial insects so that they may be recognized.

There is a difference of opinion as to the best method to pursue in discussing the chief injurious insects in an elementary class. For some years I discussed them according to the orders to which they belong, after the manner of J. B. Smith's "Economic Entomology," and I obtained fairly satisfactory results. By this method the relationships of the forms discussed are kept constantly before the minds of the students—a matter of some importance, I admit, for students who may wish to pursue their studies further in the third and fourth years.

The other method is to discuss the insects according to the host after the manner of Sanderson's "Insect Pests of Farm, Garden and Orchard," and Saunders' "Injurious Insects of the Orchard," and Weed's "Insects and Insecticides." The advantage of this method is that the student's attention is constantly directed to the crops that are injured.

Personally I am in favor of the latter method for the class of students we have to deal with.

THIRD YEAR: In the Third Year, however, the students are preparing themselves to become investigators, teachers, etc.; hence more attention should be given to entomology as a science. Some familiarity with the families and chief genera is demanded, and this can be best acquired by practical work in the laboratory. Comstock's Manual is perhaps the best book to use in this connection, although Sanderson and Jackson's "Elementary Entomology" with its many keys is also an admirable work. Its lower price will tend to make it more popular with students.

My plan for the Third Year class is to devote the fall term to a more detailed study of the anatomy of some typical insects, and to a study of the chief families and common genera, and the winter term to a more detailed study of the economic forms. Sanderson's "Insect Pests of the Farm, Garden and Orchard" makes an excellent text-book for the winter course, but it is unfortunate that the price is so high. According to this plan both of Sanderson's works are necessary for the year's work, but the cost of two such books is to some extent prohibitive.

For the same reason, the introduction of Sanderson's larger book for the Second Year class meets with disapproval on the part of most students.

FOURTH YEAR: The entomology of the Fourth Year is of necessity taken by students who are specializing. Special problems are assigned for study and discussion, and methods of work and a knowledge of the literature are emphasized.

A NEW BOOK NEEDED: From what I have already said it may be inferred that there is a pressing need for a textbook or handbook of entomology that will serve the needs of the students during the Second and Third Years, and that will at the same time keep the cost within moderate bounds.

I venture here to suggest a plan of contents of such a book, which would be a handbook rather than a textbook. Part I would deal with anatomy, metamorphosis, and reproduction, and would contain laboratory exercises. Part II would contain host-keys for the identification of the injurious insects according to the manner of injury done to the root, stem, leaf or fruit.

Part III would contain concise descriptions of these insects arranged according to order and family; and simple keys might be inserted to enable the student to identify them.

Part IV would deal with methods of control. Part V with general entomology; and Part VI with collecting and preserving insects. By a system of cross-references full information regarding the life-history and methods of control of each insect could be readily obtained.

This plan would, in my opinion, make the handbook a most useful and valuable work and guide. Moreover, much needless repetition would be avoided, and the instructor could without much trouble select the portions best adapted to his classes in both the Second and Third Years.

THE RISE IN PUBLIC ESTIMATION OF THE SCIENCE OF ENTOMOLOGY.

Rev. Thomas W. Fyles, D.C.L., Ottawa.

"Listen not to those who tell thee
That ours is a worthless study,
Worthless from the very smallness
Of the creatures that we study;
Solomon, of men the wisest,
Taught a very different lesson."

—The Insect Hunters, Ed. Newman.

How great a change in popular opinion has taken place within the memory of the older men among us in regard to the lesser objects of Creation, and those who give attention to them. Men in former days were disposed to look upon entomologists with contemptuous amusement. The people of Compton were wont to speak of Gosse as "that crazy Englishman who goes about picking up bugs."

The common people, both in England and Canada, were profoundly ignorant as to the nature, habits and life-histories of the smaller living things; and where Ignorance prevails, Superstition finds admission.

Those were the days when the dragon-fly was called the Devil's Darning-Needle; and *Ocypus olens,* the Devil's Coach-horse. The Death's Head Moth (*Acherontia atropos*) was regarded as the herald of the king of terrors, and the red spider as the harbinger of fortune. That prolific writer, Baring Gould, founded one of his best stories upon the latter misconception.

The most erroneous speculations in regard to minute living things were indulged. I call to mind the look of complaisant amusement, befitting one who possessed superior knowledge, with which a man once regarded me, when I told him that the hair snake (*Gordius varius*) came from an egg, one of a chain of eggs laid by the mother Gordius. He had been one of a party led by a guide into the wilderness in search of moose. After tramping some miles, the hunters came to a stream. The guide, looking into the water, exclaimed, "Ah, there are moose not far away! Here are moose-hairs turned into snakes." The *guide* said this—an *experienced* guide; and my friend believed it. Confidence in the guide is necessary for the belief in modern miracles.

But while some country people were credulous, others were of a sceptical turn of mind.

A country clergyman, desirous of improving his people, invited a well-known microscopist from the city to give a lecture in his parish. The gentleman came, and took for his subject *"The Amoeba."* This creature—which belongs to the *Protozoa*—appears as a mere limbless speck of sarcode. When an impulse to move comes upon it, it extrudes a leg—if you choose to call it such—and then draws itself into the leg; and so changes its place. When it comes in contact with a particle of food, it extemporizes a mouth and puts itself outside the substance. If this proves suitable it assimilates it; if not, it ejects it at the nearest point.

The lecturer described the creature, and told of its ways, and made a witty and interesting address; and then the people were dismissed. On their way home, the village blacksmith turned to one or two of his cronies, and said sarcastically, "Was it worth that man's while to come out all this way, and try to stuff us like that?"

A perception of the importance of entomological pursuits was gradually brought about in the public mind through the occurrence of a series of insect plagues—the ravages of the Hessian Fly, of the Midge, the Locust, the Potato-beetle, the Cabbage-worm, the Phylloxera, the Larch Sawfly, etc. The trouble over these induced men to read and spread the information published by Entomologists, as to the nature of the pests, and the ways of combating them. And the impression was made and deepened that an Entomologist was not one who merely engaged in the childish sport of chasing butterflies, or indulged his miserly propensities by storing away his captures.

One of the first publications to help the Canadian farmers to a right appreciation of Entomological pursuits was Hind's "Essay on the Insects and Diseases Injurious to the Wheat Crops." It was awarded a prize by the Bureau of Agriculture and Statistics, Toronto, in 1857, and was distributed amongst the farmers of the country. The copy I have was sent to George Boright, of East Farnham, by James Moir Ferris, M.P. for Brome. When Mr. Boright died, his widow gave the book to me.

The essay opens with—

A Treatment and Classification of Insects.

It treats of—

The Hessian Fly.
The Wheat Midge.
The Wheat Stem-fly, and other Depredators.

It describes—

Rust—Smut—Pepper Bread—Ergot. And lastly it tells of Insect Enemies of stored grain.

Hind derived his information largely from American sources—from Fitch particularly.

A delightful book that found its way to Canada was Gosse's *Canadian Naturalist*, published by Van Voorst in 1841. In it the author tells of "Walks and Talks" of a father and son, in the neighbourhood of Compton, Province of Quebec. Gosse was master of the school at Compton when he wrote the book. I purchased a copy of it in Hill's book store, Montreal, in 1862.

The peripatetic mode of teaching supposed to be carried on by the father of the *Canadian Naturalist* was no new thing in the world. It was the mode pursued by the noted educator Pestalozzi, and long before him by the philosopher Aristotle; and above all it was the method of Him who led his disciples over the hills of Judea, and taught them divine lessons from common things.

Gosse may, or may not, have seen a work entitled "Spectacle of Nature, or Nature Displayed," translated from the French by Samuel Humphreys, and dedicated to "His Royal Highness the Duke of Cumberland." In the dedication of this work the translator says: "The amiable qualities with which nature has enriched Your Royal Highness, have been so happily cultivated by the best of educations, that I am persuaded the wonderful scenes of Providence, so elegantly displayed in this treatise, will not be considered by Your Royal Highness as an unpleasing entertainment," etc. If I mistake not, this Duke of Cumberland was the same who, seven years afterwards, on Drummossie Moor, slaughtered the followers of Prince Charles Edward, and gained the title of Butcher Cumberland.

My copy of the "Spectacle of Nature" is one of the fourth edition, printed in 1739. It is profusely illustrated by Madam Cochin. The insects figured are easily recognized. The dialogues in this work are supposed to be carried on by the Count and Countess de Jonval, the Prior de Jonval, and the Chevalier du Breuil (the youth under instruction). I obtained the book in a second-hand book-store in Montreal.

No doubt incoming naturalists brought in works of the masters in Entomology. I have seen in Canada the productions of Swammerdam, Latreille, Kirby, Drury, Stainton, Thomas Say—the father of American Entomology—and others, but these would be read by few. I have also found in second-hand book-stores, popular works likely to interest the young, such as, Knight's "Insect Miscellanies," London, 1831, and the "History of Insects," Religious Tract Society, 1839. *Seed had been scattered.*

A grand movement for the advancement of practical entomology was made when the Rev. C. J. S. Bethune, M.A., of Cobourg, and W. Saunders, Esq., of London, issued a circular, calling upon those interested in Entomology to meet in Toronto, on the 16th of April, 1863. The following are the names of those who responded to the call. Prof. W. Hincks, F.L.S., Prof. H. Croft, D.C.L., Beverly R. Morris, M.D.,* J. H. Sangster, A.M., and J. Hibbert, of Toronto; Thomas Cowdry, M.D., and H. Cowdry, York Mills; Rev. C. J. S. Bethune, M.A., of Cobourg; W. Saunders, London.

The Society formed at this meeting received encouragement and support from the Ontario Government, and grew rapidly. It was incorporated in May, 1871, and its first general meeting was held on September 27th in the same year. The officers elected on that occasion were:—

President: Rev. C. J. S. Bethune, M.A., Trinity College School, Port Hope.
Vice-President: W. Saunders Esq., London, Ont.
Secretary-Treasurer: E. Baynes Reed, Esq., London, Ont.
Council: Prof. H. Croft, University College, Toronto; Prof. J. Macoun, Albert College, Belleville; R. V. Rogers, Esq., Kingston; J. M. Denton, Esq., London; J. Petit, Esq., Grimsby.
Auditors: J. H. Griffith, Esq., and C. Chapman, Esq., London.

Of those whose names are given above three men are entitled to our deepest respect and gratitude, because of the support they have given to our Society, and because of their eminent services to the community at large.

Dr. C. J. S. Bethune, Professor of Entomology in Ontario Agricultural College, was for many years the Head Master of one of our great public schools; yet, notwithstanding the many duties that devolved upon him, he remained all the time, and has continued to this day, a firm supporter of the Entomological Society of Ontario. We all deeply regret that a severe affection of the eyes keeps him from us to-day; and we devoutly wish him speedy relief and a complete cure.

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* Dr. Beverly R. Morris returned to England shortly afterwards. He was a brother of the Rev. F. O. Morris, M.A., Member of the Ashmolean Society, etc., author of a "History of British Birds," "A Natural History of British Moths," and "A History of British Butterflies."

Dr. William Saunders was President of the Entomological Society from 1875 to 1886, and Editor of the *Canadian Entomologist* from 1874 to 1886. His appointment as Director of the Experimental Farms of the Dominion—a position for which he was admirably fitted—was the cause of his retirement from office in the Society.

We have as a token of Dr. Saunders' entomological ability, his valuable work on "Insects Injurious to Fruits." For this, and in recognition of his many scientific attainments, the Duke of Mantua and Montserrat presented him with a handsome gold medal.

Professor John Macoun, F.R.S.C., F.L.S., Naturalist for the Geological Survey, is noted throughout this continent for his ornithological and botanical works.

Such men as these could not but raise in public estimation any cause to which they gave their names and support.

An important Government appointment, following upon that of Dr. Saunders, was that of Dr. James Fletcher as Botanist and Entomologist for the Experimental Farms. Dr. Fletcher's extensive knowledge, his genial manners, his ready speech and his goodly presence, made him a very welcome visitor at meetings of Agricultural, Horticultural and other societies, and he did much, throughout the wide Dominion, to bring the study of Entomology favourably before the people.

Dr. Fletcher was one of those who, in 1879, established the Ottawa Field Naturalists' Club, a very important association, the leaders of which conduct its members into the fields and woods, and point out to them the wonders of Creation, and the lessons that may be learned from them. Mr. Arthur Gibson, so long and so well known as an able Entomologist, is the Editor of its organ *The Ottawa Naturalist.* The Club numbers over 300 members.

Another association worthy of our consideration is that which has its headquarters in Macdonald College at Ste. Anne de Bellevue—an institution that was raised and endowed, at a cost of $5,000,000, by the munificent patron of learning, Sir William Christopher Macdonald. The Association I speak of is the "Quebec Society for the Protection of Plants." With it some of our best known Entomologists are connected—notably Professors Lochhead and Swaine. The Society has issued four Annual Reports, and also a capital list of the Lepidoptera of Quebec Province, by Mr. A. F. Winn. These have been printed by order of the Quebec Legislature. The Society has a membership of 60 persons.

Now consider for a moment the numbers I have adduced:—

After notice of meeting had been issued—9 persons only—one of them a boy, assembled in Toronto to form the Entomological Society of Ontario; the Ottawa Field Naturalists number now over 300; The Preservation of Plants Society, 60. Do not these figures betoken an increased interest in Nature Studies? Our Ontario Entomological Society numbers at the present time 141 members.

In its early years the Entomological Society was disposed to itinerate. Its annual meetings from 1871 to 1877 were held successively in Kingston, Hamilton, London, Toronto, Ottawa and again in Hamilton; but for 28 years after, with but seven interruptions, they were held in London. Members good and true resided in that city and its vicinity; and the Geological, Botanical, Ornithological, and Microscopical Sections of the Society there did excellent work. There, too, Mr. J. Alston Moffat, most patient and obliging of curators, devoted himself to the duties of his office. In the Annual Report for 1897 there is a picture of him and of the library he loved so well.

In 1907, by arrangement with the authorities of the Ontario Agricultural College, the headquarters of the Society were taken up in that institution. The most important gain in the removal was that the influence of the Society was brought to bear upon the farm-students and teachers-in-training in the College. A like advantage is enjoyed by the Society for the Protection of Plants, at Ste. Anne's, which has both English-speaking and French-Canadian members.

When I moved to South Quebec in 1883, the Abbé Provancher was living at Cap Rouge, and I had some correspondence with him respecting a saw-fly which proved to be a new species. Provancher may be regarded as the father of French-Canadian Entomology. He originated, and edited for twenty years, that useful magazine, *Le Naturaliste Canadien,* which is still ably carried on by the Rev. V. Huard, Director of the Quebec Provincial Museums, etc.

Provancher also published three volumes of "Faune Entomologique du Canada," the excellence of which is shown by the demand for them.

Now, there are good men in many of the French-Canadian parishes and institutions giving attention to Entomology—notably the Rev. Abbé Roy, of Levis, and the Rev. Abbé Begin, of Sherbrooke.

Of the great and far-reaching influence that American Entomology has had in Canada a ready token will be found in our reports and other literary productions. I speak of the elegant little monogram formed of the letters C.V.R., standing for Charles Valentine Riley.

You will find this monogram in the cut of *Agrotis ypsilon* in Winn's list just published; you will find it in that of the Clover Leaf Borer, in the last report of the Quebec Society for the Protection of Plants; you will find it in that of the Diamond-back Moth, in the last report of our own Society. It appears also in Saunders' "Insects Injurious to Fruits," in the cut of the Codling Moth on page 127, and again in the cut of the Rocky Mountain Locust, on page 158. All these, and many other illustrations we meet with, have been printed from electrotypes from Riley's drawings.

Charles Valentine Riley, the marvellous boy, who, a poor English immigrant, went to work on an Illinois farm, and then, as time passed on, by his untiring perseverance, his powers of observation, his careful studies, his love of Nature, his wonderful skill as a draughtsman, raised himself step by step, till he became the chief of the Bureau of Entomology in the Department of Agriculture at Washington, and was honoured with the degrees of M.A. and Ph.D.—how much he did in the cause of Entomology, and how greatly his labours have benefited us here!

Alas, Dr. Riley was cut off, "in the midst of his days," by an accident—as some one has said, "he rode to his death on a bicycle." Speaking to me on this sad event, Dr. Bethune said: "Among Entomologists, Riley was *facile princeps.*" The *Entomologist's Monthly Magazine* of London, England, had previously spoken of Riley as "the foremost economic entomologist of the day." Riley was worthy of much praise. But this can be truly said: Never was better work done in the Bureau of Entomology at Washington than is done at this day, by Dr. L. O. Howard and his staff of zealous assistants. The pamphlets under the heads of Technical Series, Circulars, and Farmers' Bulletins are excellent and are scattered broadcast. They must have a wonderful effect upon the community at large.

A glance through our own publications will convince one that we are under great obligations to American scientists.

What pleasure and profit we have derived from addresses from L. O. Howard, F. M. Webster, John B. Smith, Ephraim Porter Felt!

Science knows no political boundaries; and between Canada and the United States there has always been, and I trust always will be, free and unchecked Entomological reciprocity.

Speaking of intercourse with the Americans, let me bring in an episode:—

Once upon a time when I was Rector of Nelsonville (Cowansville and Sweetsburgh), I received a request from Sheldon, Vermont, that I would give a lecture upon "Our Insect Friends and Insect Foes." I complied, and, the winter roads being good, I took my horse and sleigh, and one of my boys, and drove to Sheldon. It was a long drive; but we reached our destination in good time for the lecture. We had a full house. At the close of the proceedings we found that it was snowing. It snowed all night, and all the next day (Friday). We were in for what is called in those parts a three days' storm. At night I said to the gentleman with whom I was staying: "I must, if any means be possible, get home to-morrow, for my Sunday duties." We planned that I should leave my boy and team with him, till the roads were broken out, that I should take the train from Sheldon to St. Albans, and catch the Montreal Express. This would carry me to St. Johns, where I could take the South Eastern to Cowansville. Accordingly next morning I went to the station. The storm was at its height. A man came in, and as he shook the snow from his fur coat, exclaimed, "What do you call this—a Canada thaw?"

I followed the course we had planned—reached St. Albans—caught the express —I left it at St. Johns—took the South Eastern—but, alack! at West Farnham the train came to a dead stop—the line was completely blocked.

I took refuge with my friend, the Rev. T. W. Mussen, and, next morning, as there was no movement on the line, assisted him in the services of his church. As we were leaving the building word was brought to us that men with an engine and snow-plough were about to open the track as far as Cowansville. I entered the snow-plough. In it were half-a-dozen navvies with picks and shovels. Everything was icy. We started—*Thud—grind—bump—retire—charge again!* And so, for five hours. We reached Cowansville at half past six. I was cold, tired, and bruised, but I found the sexton, bade him light up the church and ring the bell; and the Lord's Day did not pass without public worship in my parish.

I have given, by request, twenty-five such lectures as I gave at Sheldon, in halls and school-houses, in different parts of the country; and the desire for information upon entomological subjects—even from so poor an exponent of them as myself—betokens, I think, a considerable advance in public estimation of the Science of Entomology.

To go back a few years: Montreal at the time I lived in it was but a small city. It had I think 66,000 inhabitants. I could find in it only one entomologist, Mr. Barnston, who lived on City Councillor Street. Mr. George J. Bowles and Mr. William Couper then lived in Quebec.

Ten years after I left, five gentlemen met by chance on Mount Royal, and decided to form a Branch of the Entomological Society of Ontario. They and two others met on the 16th of October, 1873, and elected officers:—

President: William Couper.
Vice-President: H. Kolmar.
Secretary-Treasurer: F. B. Caulfield.
Council: G. J. Bowles, P. Kuetzing, and C. W. Pearson.
Curator: William Hibbins.

In the Notes of the Meeting, this sentence, which bears upon my subject, appears: "Your Council strongly impress on the members to use their influence in promoting the knowledge of the importance of the study of entomology, more especially with agriculturists and horticulturists, in order to enable them to check the ravages of the numerous insects injurious to vegetation."

In the notes of the fourth Annual Meeting of the Branch, the name of Mr. H. H. Lyman appears as one of the Council. At the eighth Annual Meeting he was elected President, and again on the fifteenth.

The name of Mr. A. F. Winn appears in the sixteenth report of the Branch as one of the Council, and in the seventeenth as Secretary-Treasurer.

Both Mr. Lyman and Mr. Winn have been zealous and helpful supporters of the Branch to this day; and they and their fellow-workers appear to have faithfully acted upon the suggestion of their Council above quoted.

At the close of his annual address as President of the Entomological Society of Ontario, Dr. Wm. Saunders, in 1883, made use of the following words:—

"Who will press to the front, and fill the vacant places in our ranks?" The question has an air of sadness like that in the old song:—

> "Who will fill our vacant places?
> Who will sing our songs to-night?"

"One by one," continued Mr. Saunders, "our busy workers pass away."

Yes, William Couper, (I will speak only of those whom I personally knew.) G. J. Bowles, F. B. Caulfield, W. D. Shaw, J. M. Denton, Very Rev. Dean Innis, Rev. Vincent Clementi, J. Alston Moffat, Captain Gamble Geddes, J. A. Balkwill, Prof. J. H. Panton, Dr. W. Brodie, and Dr. James Fletcher have all passed the "Great Divide," but they have left pleasant memories behind them.

"But," concluded Dr. Saunders, "our favourite branch of natural science still lives, and will continue to assert its increasing importance, and to confer its benefits on all succeeding generations."

While our Society continues to bring forward, or attract to itself, such able men as are now filling its offices, and carrying on its affairs, its influence with the public will not abate. And now with an expression of a hearty wish that these men may have wider and wider opportunities for making known the wonders of the Insect World, the benefits we derive from our Insect Friends, and the best means of resisting the attacks of our Insect adversaries, I bring this, my seventieth contribution to the Reports of the Society, to a close.

THE CHINCH BUG IN ONTARIO.

H. F. Hudson, Division of Entomology, Ottawa.

The present brief paper embodies the result of an investigation into the Chinch Bug situation in Western Ontario which was carried on during the past summer, and for general interest I have included the most recent methods which have been adopted in Illinois with such success to combat this well-known pest. Probably no single insect pest has caused such fatal results to the staple grains of America than has this one. Investigation work was begun in the middle of

May, but a previous brief visit to the infested area was made by Mr. G. E. Sanders of this office in the early part of the year, when the bugs were in their winter quarters, hibernating under leaves in woodlots and under rubbish of all descriptions.

At the time of my visit, in the latter part of May, a large proportion of the bugs were in coitu, but I was then informed that they were noticed pairing at least a week previous to this. A few pairs in copula were taken and put in pairs on oat plants growing under glass chimneys to ascertain the earliest date of oviposition, the period of egg laying and the number of eggs usually laid by a single female. The first eggs were deposited May 28th, and these hatched June 18th, the average egg production for the female being 95, the period of oviposition being 18-19 days; but under field conditions the period of oviposition for the whole brood covers a period of six weeks. The weather throughout was cool and moist, which no doubt retarded the hatching of the eggs.

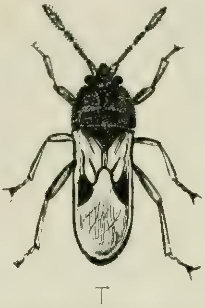

Fig. 14.—Chinch Bug.

Life History. The eggs are about .03 in. in length, elongate-oval in shape, rather narrowly rounded at one end, and slightly squared at the other, from the end of which may be seen four small rounded tubercles. The newly deposited egg is whitish and translucent, but soon changes to an amber shade, and finally, as the insect develops within, becomes definitely red. The Chinch Bug is dimorphic, there being both a short and a long-winged form, and both forms are present, the greater proportion, however, being of the long-winged type. Except after the final moult, the immature stages are identical, and, so far as I know, they have never been distinguished. The newly hatched larva is yellowish-red in colour, with a whitish-yellow band on the three larger abdominal joints; from the second to the third day the body becomes of a vermilion color, while the pale band across the middle of the body becomes slightly darker. On the sixth day, the head and thorax change to a dusky tint, the abdomen is still of a vermilion colour, the pale transverse band is quite distinct, and two dark lines appear on the prothorax. Very little change except growth takes place until the insects are a month old, when the wing-pads are plainly evident. As growth continues, these enlarge, and the whitish central band becomes more or less obliterated. Shortly after this the final moult takes place. After shedding its skin, the Chinch Bug is of a pale pinkish colour throughout, the wings extending either the whole length of the body, or, in the short-winged type, only one half the length of the body, with pinkish veins. Soon after, two black dots appear on the wing covers, the head and thorax become darker in colour and finally black. The adult insect is an elongate-oval, with broadly rounded ends, about .15 in. in length, and its width about ¼ as much.

The head and thorax are black, entire surface except the wings minutely hairy, the wing-covers are milk white, with a triangular black scutellum between them in front, the whitish area giving it roughly the form of the letter X.

The first winged specimens were obtained August 11th, giving a life cycle of 54 days. Both species are single brooded, hibernating in the adult form. The long-winged form differs from the short-winged type in that when most of them have acquired wings flights of the adults occur, resulting in their dispersal through the fields, and these flights were first observed Sept. 5th and succeeding fine days.

Habits. The eggs are usually deposited on the leaf-sheath or ligule, but sometimes underground, on the finer roots. The newly-hatched larvæ for about the first week of their existence feed on the tender roots below the surface, and usually out of sight. They may so feed for a month, for I have taken specimens very delicate in body and color, with the wing pads partly developed, and on exposure to light they would turn nearly black, almost immediately, but this must be regarded as exceptional. They seek the higher and drier portions of a field, for a wet location is detrimental to Chinch Bug progress. Hence it is the poorer condition a field is in the more liable it is to serious injury, as where the growth is rank, or the crop in good health, little injury will result.

Food Plants. The principal plants which have suffered most are the meadow grasses generally; particularly is this true of timothy. Wheat, corn, and oats have been very slightly injured, and in no case except where such a field was adjacent to a meadow or pasture. This does not mean that they prefer the meadow grasses to other crops, but simply that grain crops have been very scarce, and the succulent nature of the grasses all through the summer has not caused them to migrate in search of food.

Area of Infestation. The infested area covers about 5 square miles, embracing altogether about 1,800 acres of pasture and hay land. These are what may be termed grass farms, where the greater part of the land is always in sod. On the other hand, where a regular system of rotation has been followed, and the land ploughed up every three or four years, Chinch Bugs were very scarce, except in a small woodland pasture, which was not deemed advisable to cultivate. Under the present system of grass farming, Chinch Bug injury is likely to be on the increase, unless we should be favoured with an open winter, or a wet summer, as heavy rains at hatching time are disastrous to Chinch Bug progress. Such a season as we have experienced this year has materially reduced their numbers. Wet weather at hatching time was a severe check to undue increase, and this was followed later on in the season, in September, by the appearance of the white fungus *Sporotrichum globuliferum,* which killed about 25 per cent. at least.

The White Fungus. Inasmuch as the fungus is dependent upon suitable meteorological conditions for its growth, it is sufficient to place it in the second or third place as a suitable remedy for Chinch Bug extinction. In the latter part of May I attempted to reproduce this fungus artificially. I am indebted to Mr. P. A. Glenn, of the Illinois Experiment Station, for a pure culture of this fungus. Suitable tight boxes were taken, approximately 2 ft. long, 1 ft. wide and 14 in. high. Into these boxes soil direct from the field was introduced. In one box the spores of the fungus were introduced and thoroughly mixed with the soil, while the other was used as a check. It must be borne in mind that neither soil nor boxes were sterilized. Two to three inches of soil was placed in the boxes, thoroughly moistened and about half a pint of bugs introduced to each box, and fresh food was introduced as often as necessary. It is not necessary to cover the box, a broad, heavy chalk line near the top of the box is sufficient to impede their migration. In the infected box the first diseased specimens appeared six days after introduction, seven specimens being found, all mature and probably "spent" bugs. No other specimens were obtained until 14 days after introduction, when 16 specimens were found to be diseased. The experiment was carried on for a month, with no other appearance of diseased bugs. In the uninfected box, not one diseased specimen was obtained. Through the whole month the weather was extremely cool, and this can be the only reason why the experiment was not a greater success.

Remedies. As the Chinch Bug hibernates under rail fences, tree trunks, tufted grasses, leaves, and rubbish of all descriptions, the advantage of what may be termed clean farming, and regular rotation is at once suggested. As far as practicable burn over all waste places in the fall as late as possible, so as to expose them to the rigours of the winter. To be effective, the burning must be done thoroughly, otherwise little or no good will result.

As most of the meadows infested are adjacent to woodlots in which the greater part of the bugs hibernate, it seems reasonable to believe that if a strip of land next the woodlot was ploughed in the early fall, and planted to wheat, it would serve as an excellent bait crop for the bugs coming out of their winter quarters. An inviting food would be at first hand, the eggs would be deposited on the wheat plants, where they could be promptly destroyed, bugs and all, by efficient ploughing and immediately rolling the ground.

To eliminate the Chinch Bug from a badly infested meadow is practically an impossibility, and, where the injury has been severe, the only recourse is to fall plough the land and plant the same to a hoe or leguminous crop.

Should the bugs be numerous in a wheat or oat field, they may be trapped as follows: Previous to the harvesting of the grain, a swath should be cut around the infested field, and a space cleared with a hoe about 1 ft. wide. Post holes should then be dug about 12 in. to 16 in. deep, and about 30 ft. to 35 ft. apart. As soon as harvest starts a thin line of No. 7 asphalt road oil should then be poured on the clear surface, touching the outside surface of the holes. As harvesting proceeds and the bugs are threatened with starvation they will commence to migrate from all parts of the field. As soon as they encounter the asphalt barrier they will be forced by sheer numbers into the post-holes, when they may be promptly destroyed by pouring in a little kerosene. To cite an instance of the efficiency of this method, it may be stated that last year with 1½ barrels of oil round a 10-acre field of badly infested wheat, three bushels of Chinch Bugs were collected in eight days in a field close to Carbondale, Illinois. When a corn field is adjacent to a pasture or hay field, where the bugs are somewhat numerous and migrating on to the field of corn, they may be killed by spraying the corn with a ten per cent. solution of kerosene.

A little caution is necessary in using this substance. Do not pour the solution into the heart of the plant, and spray preferably early in the morning or late in the afternoon, otherwise the foliage may be burned. Unless the corn is vigorous, the kerosene emulsion is not recommended, but in its place use the following mixture, which is absolutely safe, but slightly more expensive.

2 ozs. soft soap.
½ oz. black leaf 40 (40 per cent. nicotine).
1 gallon soft water.

Heat the water to near boiling, thoroughly dissolving the soap, then add the nicotine solution.

As the bugs injure the plant by sucking its sap, each bug must be hit by the spray before it will succumb.

EVENING SESSION.

TUESDAY, NOV. 19TH, 1912.

A public meeting was held at 8.15 o'clock p.m. in the Normal School, which was well attended by many visitors from the city as well as members of the society. The meeting was opened by the Hon. Martin Burrell, Minister of Agriculture, whose entertaining and humorous address was much enjoyed by those present. He introduced the speaker of the evening, Mr. F. W. L. Sladen, who was recently appointed to the staff of the Division of Entomology, as Chief Assistant in Apiculture, in which subject he is a leading authority. The subject of his address, "Bumble-bees and Their Ways," is one to which Mr. Sladen has devoted many years of careful study. The lecture was illustrated by many beautiful lantern-slides and was most interesting and instructive.

BUMBLE-BEES AND THEIR WAYS.

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We have heard much of the wonderful instinct and industry of the honey-bee. But little has been told of the bumble-bee, the honey-bee's nearest relative in the temperate zone, and the only bee that shares with it the important distinction of living in communities. And yet, as I hope to show this evening, the bumble-bee is a most interesting and intelligent insect. We have not been fair to the bumble-bees. It is partly on account of its usefulness in supplying honey and wax that the honey-bee has attracted so much of our attention, and the result has been that we have neglected our beautiful bumble-bees. Our neglect of the bumble-bee is the less defensible because it, too, is a very useful insect in an indirect way. A great number of plants bearing long-tubed flowers, including that most valuable fodder plant, the red clover, depend for their existence on the bumble-bee, for it alone visits these flowers to any extent and fertilizes them, no other bees having tongues long enough to reach the nectar in them. In consequence of the absence of bumble-bees in New Zealand the farmers there were unable to get their clover to produce seed in any quantity. Bumble-bees were, therefore, imported from England in 1884, and two species, *Bombus terrestris* and *B. ruderatus,* were immediately acclimatised. As soon as these became plentiful the clover produced an abundant crop of seed, and has been doing so ever since.

Students of the honey-bee ought to be specially interested in the bumble-bee, for in many respects it shows an organization and civilization leading up to that of the honey-bee, yet, and here is an interesting point, it is not midway between the solitary bees and the honey-bee, but has developed on its own lines, and in its own particular sphere is as perfect as the honey-bee is perfect in its domain.

In the bumble-bee, as in the honey-bee, the female sex has two forms, a reproductive form called the queen and an industrious form called the worker. The queen is larger than the worker.

Each colony contains one old queen which is the mother of the workers, of which the major part of the population is composed. In the honey-bee the queen is much more differentiated from the worker than in the bumble-bee. The honey-bee queen is little else than a machine for laying eggs in enormous numbers. She cannot gather food and is even unable to feed herself adequately. She is extremely helpless and is always surrounded by the workers, who minister to her every want, for, left alone, she would die. Her young are cared for by the workers. She takes no part in feeding and nursing them. Her sting has lost its use as a weapon except for combating rival queens.

But the bumble-bee queen is a much less specialized and more capable insect. She has not sacrificed her instincts of industry, self-preservation, and affection and care of her young to the god of reproduction like the honey-bee queen. Indeed, the *role* she has to to play as the foundress of a large establishment containing a quantity of juicy maggots, pollen, and honey, attractive food for a host of animals ranging from mammals, such as badgers, weasels and shrews down to insects and mites, some of which exist solely as parasites on the bumble-bee and her brood, has sharpened her wits and we find her far more intelligent, industrious, and attentive to her brood than any other bee, if not any other insect. In fact, the care she bestows on her young is comparable with that shown by birds and mammals.

Let us trace briefly the life history of a queen bumble-bee. It is no long monotony, but is divided into stages, in each of which different instincts are brought into play.

The males and queens are reared towards the end of summer when the colony is at the height of prosperity. The first important event in the queen's life is her marriage, and this is preceded by a short courtship. The males hover around trees and banks, pausing in certain places to emit a fragrant scent like the odour of flowers. It seems very probable that the queens are attracted to these spots by their fragrance, at any rate they meet their mates, and each pair flies away to enjoy a brief honeymoon. The male, small and insignificant as he is, then ceases to be useful and soon dies, and the queen immediately enters on the second stage of her career, which is to find a hibernacle in which to pass her long winter sleep. In England several of the common species burrow into the ground. The queen chooses a slope facing north or north-west, consisting of a well-drained and friable soil and buries herself to a depth of about two inches, seldom more. It is evidently damp and not cold that she seeks to avoid. Indeed, the northern aspect shows that she prefers a chilly site, and one may guess that the reason is that she does not wish to be disturbed by the sun's rays too early in the spring before plenty of flowers are out and continuous warm weather may be expected. Other species find sufficient protection in out-buildings and under subbish heaps. Possibly in the severer climate of Canada the burrowing queens go deeper into the ground. As soon as the queen has settled herself in her winter quarters she falls into a torpor, which as the cold increases grows deeper and she lies like one dead. The dark and cheerless months pass and in April—some species wait till May and even June—she awakes and quits her grave. Keeping herself active and warm with the nectar she sucks from the willow-catkins, maples, and other flowers, she soon looks for a place in which to establish a colony. In England this is almost always a nest that has been made and afterwards vacated by field-mice, voles, or other small mammals. Some of the species of bumble-bees select a nest situated in thick grass. Others, and these comprise the larger number, prefer to live underground with a long and winding tunnel leading to the nest. Occasionally a bird's nest in a hollow tree is chosen, and a nest between the double walls of an outbuilding meets the taste of some species. I once found a nest in an old shoe and another in a rusty kettle lying on a rubbish heap overgrown with weeds.

The queen teases the material in the centre of the nest with her legs and this makes it very soft and dry. Then she crawls into the middle of it and tramps it down, forming a warm and cozy cavity. Here she accumulates a lump of pollen about the size of a pea, and on this lump she lays her first batch of eggs which number about a dozen. The eggs are laid in a little cell of wax which is constructed on the top of the pollen, and after they have been laid the cell is sealed over with wax.

The process of pollen collecting is very interesting. The pollen dust gathers in the long body hairs with which all bumble-bees are densely clothed, and it is brushed out of these by the middle legs and conveyed to the mouth where it is moistened with honey. The moistened pollen is then transferred to a particular spot on the bristly inner side of one of the joints of the hind leg called the metatarsus or planta. This is really the first joint of the foot. The next joint above the metatarsus, namely the tibia, is provided at the end on the inner side with a comb which is used to scrape the moistened pollen off the metatarsus of the opposite leg into a receptacle at the end of the tibia. When the leg is straightened a projection on the base of the metatarsus enters the receptacle and pushes the pollen out of it on to the outer side of the tibia. As the result of many such contributions the well-known pellet of pollen is formed on the outer side of the tibia, and it is held in by a wall of stiff hairs surrounding it and acting like the stakes that farmer places around his wagon when he desires to carry hay. Two or three stiff hairs stand in the entrance to the pollen basket. The object of these seems to be to form a means of attachment for the pollen before a sufficient quantity has accumulated to be held by hairs at the sides.

In the honey-bee the pollen collecting apparatus on the hind legs is essentially the same, but it is more specialized. The moistened pollen is spread over the whole of the inner side of the metatarsus, the bristles there being arranged in ten transverse rows, and they hold the pollen in greater quantity, while the comb on the end of the tibia used for scraping it out of them is a very efficient instrument. Its efficiency is enhanced by the fact there are no spurs on the end of the tibia in the honey-bee, though these are present in the bumble-bee and all the solitary bees and are useful to these in performing their toilet.

It was formerly believed that a bee hardly ever visited more than one species of flower on the same journey, but careful observers have found that under certain conditions changing from one species to another is not rare, and this has been proved by the presence of variegated loads of pollen. Bumble-bees are more inclined to change from one species of flower to another than honey-bees. This is especially true in the case of the common European species *Bombus terrestris*, which is closely related to the Canadian species *B. terricola*. In a nest of *B. terrestris* that I kept under observation in July this year, 40 per cent. of the workers returned home with variegated loads. In order to discover exactly how the pollen basket is loaded I took sections of a number of the variegated loads collected by the workers in this nest. In one of the most interesting of these, no less than eight successive kinds of pollen were distinguishable. The sections showed clearly that after the pellet had reached a certain size every fresh lot of pollen contributed is forced in as a wedge between the pollen previously gathered and the surface of the tibia. The growing lump is occasionally patted by the middle leg to keep it in shape.

The wax of the bumble-bee is secreted by glands situated beneath the membranes connecting the segments of the upper side of the abdomen, not in the underside of the abdomen as in the honey-bee. It is much inferior to beeswax, being soft and sticky, and its color is brown. It varies in tint and softness according to the species. It is scraped off the body with the brush on the inner side of the hind metatarsus, and worked up with the mandibles.

To return to the commencing nest. The queen next begins to construct a waxen cell or honey-pot to hold the honey she collects. It is always formed in the entrance to the nest. When finished the pot is large, being about ¾ in. in diameter. It is very fragile but it remains watertight for about a month, which is as long as it is needed. The picture is from a photograph I took of a honey-pot of *Bombus lapidarius.* In fine weather the queen is so industrious that she fills the honey-pot to the brim with thin nectar in two or three hours, and this is sufficient to feed her throughout the night.

A constant supply of nectar enables the queen to maintain continuous animation and so to incubate her eggs, which need to be kept warm for three or four days before they hatch. The larvæ, always hidden under their waxen covering, are fed by the queen with a mixture of honey and pollen. She churns up the mixture in her honey-sac, makes a hole in the wax covering with her mandibles, spues out the food amongst the larvæ and then closes the hole. The larvæ also feed upon the pollen on which they rest.

In eleven days from the time the eggs were laid, the larvæ, still covered with wax, are full grown and spin their oval cocoons. From these the perfect bees emerge about 22 days after the eggs were laid, that is to say, if the queen has been able to incubate the brood continuously, but a few days longer if, through stress of bad weather, it has been allowed occasionally to get chilled. As the brood approaches the time of hatching the queen becomes doubly devoted to it, and she sits for hours spreading her body to nearly twice its usual length over it. At this stage molestation makes her buzz angrily and cling closely to the brood, whereas at an earlier stage it would frighten her and probably make her desert. It is interesting to note that these first larvæ arrange themselves and spin their cocoons in such a way as to derive the greatest heat from the queen's body, those at the sides being at a higher level than those in the middle; thus a groove is formed just the size of the queen's body and here she sits. This groove, I notice, runs in the direction of the honey-pot, never in the opposite direction across the nest.

This first brood consists entirely of small workers which help the queen to gather food and to incubate and feed the succeeding batches of brood that develop from the eggs that the queen now lays in increasing numbers. These eggs develop into workers larger and more capable than the first. The queen henceforward remains at home devoting herself to egg-laying and other home duties and so she enjoys a well-earned rest from the labour of gathering food, a fitting reward for having, single-handed, brought the colony into being through long and patient labour.

The colony now becomes busy and prosperous and honey is stored in the vacated cocoons and also in waxen honey-pots specially constructed to receive it.

Pollen is also stored in the old cocoons or in specially constructed waxen cells, which are by some species attached to the bunches of larvæ. The photograph here shown is of a nest of *Bombus lapidarius.* Notice the wax-covered bunches of larvæ, the clusters of cocoons and the waxen honey-pots filled with glistening honey. In one place an old cocoon containing pollen may be seen.

The number of workers produced varies according to the species. In some of the underground dwelling species, for instance, *Bombus lapidarius,* it amounts to about 300, while in some of the surface nests it does not exceed 60. The males and queens are reared after the workers, and they leave the nest as soon as they are fledged. By this time the workers are getting old and worn and they die off rather quickly. Finally the old queen herself perishes, but this event is often preceded by a kind of Indian summer in which, having no more eggs to lay, she becomes quite lively and youthful looking again. Death, when at last it comes, is probably painless. A cold night and an empty cupboard caused torpor, as it did on many occasions in the early part of her career, but this time there is no awakening. And so ends the recently busy community.

Bumble-bees have many enemies. Perhaps the greatest are of their own kind. In the case of two of the commonest British species, *Bombus terrestris* and *lapidarius,* a queen finding a commencing nest of her own species attaches herself to it. The old queen remains friendly with the intruder until she has eggs to lay. Then a battle royal takes place and one of the queens stings the other to death. I have found as many as twenty dead *terrestris* queens that have been killed in this way lying under a *terrestris* nest. There is a whole genus of lazy bumble-bees named *Psithyrus* whose nature it is to prey on the industrious bumble-bees in much the same way. Each species of *Psithyrus* preys on a particular species or group of species of *Bombus.* The *Psithyrus* is destitute of the pollen-collecting apparatus on the hind legs and is quite incapable of establishing a nest and providing food for her young. She is a heavy, lazy, dark-winged individual. Her skin is exceedingly thick and hard, the plates covering the abdomen fitting closely over one another, forming a coat of mail to protect her from the stings of the *Bombus* queen. She prefers to find the *Bombus* nest when a few workers have hatched. Here she devotes herself to winning popularity, and as soon as she finds that sufficient eggs have been laid to produce a good number of workers she murders the unfortunate *Bombus* queen and compels the workers to become her slaves and rear her young, for she produces no workers of her own kind, only males and queens.

Sometimes the *Psithyrus* fails to find the *Bombus* nest until many workers have hatched. These attack her furiously and generally succeed by long-continued efforts in killing her by stinging her in some joint between the harness, such as the neck or insertion of the wings. It is a remarkable fact that the *Psithyrus* queens do not fight among themselves. Should more than one find the same nest the others slink off to search for other nests, leaving the first one in possession. Should a *Psithyrus* queen find a nest of a different species of *Bombus* to that on which she naturally preys she lodges in it night after night, compelling the *Bombus* to share with her the food the latter has collected until she finds a nest of her true host. Another striking fact is that the *Psithyrus* usually resembles in colour the species of *Bombus* on which it preys. This mimicry cannot be for protection from the *Bombi* for they meet only in the nest where it is quite dark. Probably the mimicry is due to the slightly greater protection from the attacks of birds, most of which avoid bumble-bees, afforded by donning the warning livery of their more abundant and better recognized hosts. By so doing the *Psithyrus* passes as one of them and does not attract any particular attention when associating with them. Coloration is very unstable in many species of *Bombus* (and *Psithyrus*), for instance, *B. lapidarius*, which in England is black with a red tail, has in many parts of Europe three bright yellow bands as well, and there is a strong tendency towards convergence in different regions. In north-eastern Europe the convergence takes the form of melanism. In Canada, dingy yellow with a black band or two and occasionally a belt of red across the abdomen, is the favourite pattern, while in the Caucasian Mountains the yellow bands turn white.

I have made several attempts at domesticating bumble-bees. One of the most successful of these has been by the use of an artificial domicile made by digging out a cavity in grassy ground with a trowel and placing an artificial nest made of dead grass in it. A wooden cover with a tin plate rim is placed over the nest and a tunnel is made for the bees to go in and out with an iron implement driven through the ground with a mason's hammer. This device has attracted the queens of *Bombus lapidarius* in great numbers and also a few queens of several other species. It might be successful in this country with some of the plentiful species.

For studying the habits of bumble-bees I have, during the past two years, employed a wooden hut on the shelves of which I have placed my nests in little wooden boxes covered with glass. Each nest communicates with the outside by means of a special wire tube, up and down which the bees soon learn to pass. When the nest is small, one small box will hold it, but as it grows a larger one is placed on top and later a third one, still larger, is added. For strong nests a fourth box is needed. To keep the nest sweet and clean it is necessary to place a tray containing earth between the nest box and the end of the wire tube. A sheet of glass is placed over the tray and the entering and departing bees can be observed passing under it. The next slide shows a comb of *Bombus terrestris* built in one of these nest boxes. In these boxes we can see everything that the bumble-bees do in their nest, such as constructing the cells, depositing honey and pollen in them, the feeding of the young, the laying of the eggs, the spirited defence of the new-laid eggs by the queen against the attacks of the workers who endeavour to devour them, the hatching of the young bees, which are often assisted by their older sisters in their struggles to get out of their cocoons, and many other details.

Bumble-bees occur further north than honey-bees. As they do not have to store honey for the winter they can exist where the season is short and flowers comparatively scarce. The light nights of the arctic are an advantage to them, for they work on the flowers as long as they can see and their furry coats help them to withstand the cold. In the collection of bumble-bees at the Central Experimental Farm, Ottawa, are some specimens from Nottingham Island, in the Hudson Strait. Species have also been recorded from the Boothia Peninsular, and I have seen a specimen from Melville Island. There can be no doubt that bumble-bees inhabit almost the whole of Canada, and that they play an important part in the preservation of the native flora. Several unknown species probably occur in Northern Canada and I am anxious to get specimens of these for our collection, while specimens from the better known regions, provided they are sent in sufficient numbers, are also likely to include interesting varieties and possibly novelties.

The red clover, which is almost exclusively fertilized by bumble-bees, is an important fodder crop to the Canadian farmer. In the Ottawa district there seem to be more than enough bumble-bees to fertilise the red clover, but Mr. Morley

Pettit, the Provincial Apiarist, tells me that in some parts of Ontario bumble-bees are scarce, and that a farmer in one of these districts got a splendid crop of red clover seed by procuring nests of bumble-bees and putting them around the field.

At the close of the lecture a vote of thanks to Mr. Sladen for his interesting and instructive address was proposed by Mr. Grisdale and seconded by Prof. Lochhead.

SECOND DAY'S SESSION—WEDNESDAY, 20th, 1912.

At 9.15 a.m. the members met in the Carnegie Library, and the session commenced with the election of officers for 1912-1913. A list of these is given on page 6.

An interesting address was then delivered by Mr. J. H. Grisdale, Director of the Dominion Experimental Farms, who spoke of his early entomological associations and of his warm friendship for the late Dr. James Fletcher, by whom his first real interest in entomology was awakened. He referred to the importance and value of the work that is now being done in economic entomology in Canada, particularly by the Division of Entomology, and of the rapid development of the Division since the appointment of Dr. Hewitt as Dominion Entomologist. He expressed his keen interest in the work of the Society, and his readiness to do anything in his power to assist in the advancement of economic entomology.

The remainder of the forenoon and the afternoon were devoted to the reading and discussing of papers, all of which appear in the following pages.

DR. HEWITT: Owing to Mr. Tothill's illness, I shall read his paper, as I am naturally well acquainted with the work which Mr. Tothill has been carrying on.

As I told you when we last met, we proposed to start the introduction into Canada of such parasites as we could obtain of the Brown-tail and Gipsy Moths. Experiments in this direction are now being carried on and this season we have instituted field stations for the purpose; one has been established in New Brunswick and one in Nova Scotia. Mr. Tothill's work in New Brunswick has been directed especially to the question of the introduction or the possibility of the introduction of parasites of the Brown-tail Moth. The Brown-tail Moth in New Brunswick has spread over a very large area during the past two seasons, and it seems to us that the only method of combatting this pest was to import the controlling parasites of the insect. With that object in view, I made arrangements with Dr. Howard, of the United States Bureau of Entomology which, as you know, during the past few years have been importing from Europe and Asia parasites of the Gipsy Moth at an enormous expense. We are, therefore, able to make use of the results of the work of the United States Department of Agriculture in this connection, in view of Dr. Howard's willingness to assist us in this manner. One of the two insects that we could make use of is a Carabia beetle which is predaceous on the Brown-tail and Gipsy Moth larvæ. It also feeds on the caterpillars of certain other native insects. You will thus realize that this insect is extremely useful on this account. Therefore, we decided to import that insect as one of the two valuable enemies in checking the Brown-tail Moth. The other insect parasite is a fly, a Tachinid, which Mr. Tothill has studied specially; this is parasitic on the larvæ of the Brown-tail Moth and the Gipsy Moth and other native insects. Mr. Tothill's paper is as follows.

PROGRESS OF THE INTRODUCTION OF THE INSECT ENEMIES OF THE BROWN-TAIL MOTH, *EUPROCTIS CHRYSORRHOEA* LINN. INTO NEW BRUNSWICK AND SOME BIOLOGICAL NOTES ON THE HOST.

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During the season just closed a beginning was made at the suggestion of and under the general supervision of the Dominion Entomologist, Dr. C. Gordon Hewitt, in the introduction into New Brunswick of the insect enemies of the Brown-tail Moth. Owing to the fact that the host insect is at the present time exceedingly scarce in the Province, attention has been necessarily confined to the introduction of facultative rather than obligate species. Of these facultative species, special effort has been made to introduce two species both of which are native to Europe and both of which have become established, through the efforts of Dr. L. O. Howard, Chief of the United States Bureau of Entomology, and his assistants, in Massachusetts. Each of these species has abundantly proven its practical worth in Massachusetts as a valuable factor in the natural control of both the Brown-tail and Gipsy Moths.

These insects are respectively the Tachinid parasite *Compsilura concinnata* Meig, and the predatious ground beetle *Calosoma sycophanta* Linn.

In order to secure a supply of the Tachinid fly, a journey was made by the writer to Boston during the first week of July. This resulted in the collection of 12,000 caterpillars of the Gipsy Moth from points in Massachusetts where the parasite was known to be plentiful. These caterpillars were placed in Fiske trays and through the kindness of Mr. A. F. Burgess were given quarters at the Gipsy Moth Parasite Laboratory at Melrose Highlands. Within ten days' time the very satisfactory total of 2,395 puparia of *Compsilura* was obtained from the trays; these were picked out of the trays from time to time and sent by mail to Fredericton.

The shipments arrived at Fredericton in excellent condition, and there were sufficient puparia for the establishment of two strong colonies. Suitable localities were found near St. Stephen and Fredericton respectively, and consequently these two places served as the liberating points for the parasites. After the time for the issuance of the adult flies had expired the puparia were examined, and it was found that about 75 per cent. had successfully given the adult; this gives a total of about 850 adult flies for each colony.

In the case of the Fredericton colony an observation was made demonstrating the fact that this Tachinid is a strong flyer and is capable of rapid dispersion. At a point three miles from the point of liberation as the crow flies, some caterpillars of *Hyphantria cunea* were collected and subsequently dissected; these were found to contain first stage maggots of *Compsilura* so easily recognized in this stage by the presence of anal hooklets and by the feeding locality. The observation is of special interest in that the female fly responsible for the three maggots had, in order to find the particular caterpillars, to cross the River St. John, which at the place is almost three-quarters of a mile wide. Thus a fertilised female fly of *Compsilura* is capable of flying three miles, including a body of water, almost three-quarters of a mile wide before the completion of larviposition.

In regard to the predaceous ground beetle *Calosoma*, a single shipment was received on June 11, through the kindness of Dr. L. O. Howard, and Mr. A. F.

Burgess. It consisted of 80 adult beetles collected in the field near Melrose Highlands, Massachusetts. All were in excellent condition on arrival and were immediately paired off, each pair being placed in a glass breeding jar partly filled with earth.

Breeding operations were continued throughout the summer, but with only fair success, as the season was unusually cold and wet, the liberal supply of food necessary for strenuous reproduction was found to be hard to maintain, and it seems likely that most of the beetles were young ones (1 year old) which normally have a very much smaller reproductive capacity than old specimens (2 years old). Sufficient larvæ were reared, however, to enable an experiment to be planned with the view of finding out whether or not these insects in the pupal state will survive the boreal winters of New Brunswick.

Toward the end of the breeding season a small colony of the adult beetles was planted near St. Stephen, and the remainder of the beetles, some fifteen pairs, were allhowed to go into hibernation under laboratory, but at the same time natural, conditions at Fredericton. These latter will afford data on the subject of hibernation of the adults under New Brunswick conditions.

Next spring, therefore, exact data will be available on the ability of *Calosoma* to hibernate in both the pupal and adult conditions in this Province. Should hibernation prove successful in both conditions it will be possible to conduct extensive breeding operations at the laboratory next summer.

The remarkable success which has attended the introduction of *Calosoma sycophanta* into Massachusetts leaves it to be sincerely hoped that the insect may flourish equally well in boreal as in transition zones. On visiting Massachusetts this summer this insect was more in evidence than any of the several insect enemies of *E. chrysorrhoea* and *P. dispar* that have been introduced up to date. The writer had occasion to examine several hundred burlaps within a radius of five miles of Melrose Highlands and it was no uncommon occurrence to find five or more *Calosoma* larvæ under a single burlap, while it was quite uncommon to find a burlap without any of the larvæ.

Before leaving the subject of *Calosoma,* the opportunity may be taken to record an American parasite of this European insect. One of the adult beetles soon after its arrival from Massachusetts died. It was opened up and found to contain four Tachinid larvæ. Two of these were reared through to the adult state and proved to be *Biomyia georgiæ* B & B. This insect is recorded* as a parasite of two native Calosomas namely *C. calidum* Fab. and *C. peregrinator* Guér.

In addition to *Calosoma* and *Compsilura* there are four more insect enemies of the Brown-tail Moth, all true parasites, known or suspected to be in New Brunswick. The ones known to be in the Province are respectively the egg parasite *Trichogramma sp.* reared last year by Mr. George Sanders of the Division of Entomology from eggs of the host secured in Charlotte County; and the Tachinid fly *Phorocera leucaniæ* Coq., a puparium of which was secured this summer from a host caterpillar mailed to the laboratory by Mr. P. N. Vroom from Charlotte County. Both of these are native insects. The two species suspected to be in the Province are *Pteromalus egregius* Först. and *Monodontomerus aereus* Walk., both of which through the efforts of the United States authorities were introduced into Massachusetts a few years ago and both of which have recently been found in the State of Maine not far distant from the New Brunswick border.

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*J. M. Aldrich, *Cat. N. A. Diptera, 1905, p. 448.*

The presence in, or in proximity to the Province of New Brunswick of these four parasites naturally suggests the question of whether or not the insect enemies of the Brown-tail Moth now established in Massachusetts will be able to withstand the colder winters of New Brunswick; the change involved is of course from the transitional to the boreal life zone (these as recognized by Dr. C. Hart Merriam). No definite statement can be made at the present time either one way or the other. At the same time, considerable evidence bearing upon the subject has accumulated, all of which supports the theory that the insect enemies introduced from Massachusetts will flourish equally well in New Brunswick: the native *Phorocera* and *Trichogramma* are known to be parasites of the Brown-tail Moth in both Massachusetts and New Brunswick; the imported *Pteromalus* and *Monodontomerus* by natural spread from Massachusetts have almost if not quite reached the borders of New Brunswick; the host insect has shown itself adapted to the climate of Massachusetts and New Brunswick, and an insect with a wide climatic range may be reasonably expected to carry a sequence of parasites with the same range: and finally by making a study of the parasites of *Hyphantria* in both places, the writer has found that the sequence of parasites on that insect in each place is precisely the same, and if the parasites are the same for *Hyphantria* in both places analogy would argue them the same for *Euproctis*.

In regard to the Brown-tailed Moth itself it was found that the life history of the insect in New Brunswick differs at the present time in two points of considerable economic interest from the life history in Massachusetts; these two points are (1) in the selection of the host plants and (2) in the number of eggs deposited by each female.

In the matter of host plants the bringing together of the host records of all the winter nests found in the Province during the winter destruction work of 1911-12 shows that pear, plum, and willow trees, which are favorite hosts in Massachusetts, are scarcely attacked in New Brunswick. The following table serves to illustrate the point:

List of Trees and Shrubs on which Nests are Found.

Host.	No. of B.T. Nests.	% of total nests.
Apple	2,196	89.55
Pear	1	04
Plum	13	51
Choke Cherry	45	1.83
Pennsylvania Cherry	12	48
Maple	11	44
Bilberry	80	3.26
Elm	15	61
Oak	2	08
Willow	1	.04
Poplar	1	04
Thorn	73	2.97
Beech	2	08
	2,452	100.00 approx.

The column at the right hand side indicates the percentages of the total nests that were found on the particular hosts. It will be seen that nearly 90 per cent. of the total nests were found on apple, 3.26 per cent. on bilberry, 2.97 per cent.

on thorn, and so on down the list, whilst only a very small per cent. were found on pear, plum and willow. In the case of pear and plum the explanation is readily found in that, whilst these trees are plentifully grown in Massachusetts they are rarely met with in New Brunswick. In the case of willow, however, the same explanation will not hold, as in the Province of New Brunswick willow trees are quite plentiful, especially along the banks of rivers and streams, and the species are almost certainly the same as those found in Massachusetts—yet only one nest out of a total of 2,452 was found on willow!

Two reasons for this suggest themselves, one of which is found in the origin of the New Brunswick moths. It has been abundantly established that the prevailing north-easterly winds have played an important role in the distribution of the pest on the North American continent; and moreover it is reasonable to suppose that moths hatched out on high lands have been more subject to this method of distribution than those hatched out in valleys and sheltered places. The primary supply of moths in New Brunswick was therefore probably blown into the country from the high lands or 'ridges' of the adjoining State of Maine. The host plants on these high lands are conspicuous, arguing from the similar conditions of Charlotte County, New Brunswick, by an absence of willow, and would be made up largely of apple, bilberry, choke-cherry and thorn. This at least partially accounts for the absence of New Brunswick nests taken on Salix.

Another reason may probably be found in the tendency of the moths to breed back or lay their eggs upon a host plant of the same species upon which their respective caterpillars were reared. This 'breeding back' is a well-known and well-established trait among certain *Lepidoptera* with a choice of food plants, and there seems no reason for supposing that *E. chrysorrhoea* is not subject to the tendency. If the insect is subject to the tendency it would not be expected, in view of the scarcity of Salix in the localities from which the New Brunswick supply of moths originated, that willow would be selected as yet in the Province as a food plant.

These two factors working either separately or more likely together seem to be sufficient to account for the peculiar difference in the food habits of the moth in New Brunswick and Massachusetts. As the insect increases in the Province, and food plants become relatively scarce there will probably be developed a strain depositing eggs on willow—and also on elm.

Before leaving this subject of host plants it may be pointed out that just as the lack of nests found on Salix can be explained so and in precisely the same manner can the abundance of nests found on apple, bilberry, thorn and choke-cherry be explained. From these four host plants was bred the original stock that was blown into New Brunswick; the moths found themselves blown onto the 'ridges' of Charlotte County where plants of the same species were abundant; the tendency to breed back onto the original host plants was present; and the result was that 97.61 per cent. of all the nests found in N. B. in the winter of 1911-12 were taken on apple, bilberry, thorn and choke-cherry.

In regard to the egg laying capacity of *E. chrysorrhoea,* there was found to be a decrease in New Brunswick as compared with Massachusetts of 110 less eggs per female. In 1907, Mr. A. H. Kirkland* had 389 winter webs collected at various points throughout the then infested district and examined; these gave an average larval content of 286 per web. This spring (1912) the writer instigated an examination of 121 webs collected at various points in New Brunswick; these gave an average larval content of 175.81 per web, or approximately 110 less larvæ per web than in the case of the more southern relatives and progenitors.

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*A. H. Kirkland, Third Annual Report of the Superintendent for Suppressing the Gipsy and Brown-tail Moths, Boston, 1908, pp. 168-169.

This discrepancy probably appears slightly greater than it actually is on account of the fact that as the total number of feathered enemies apparently remains unchanged, while the total number of caterpillars becomes greater it would naturally be expected that birds would be responsible for a greater mortality of the wintering larvæ in the thinly infested Canadian area than in the thickly infested American one. Also Mr. Kirkland's nests possibly contained a few more 'compound' ones than did the Canadian ones. These two factors, however, by no means eliminate the discrepancy.

The explanation of the discrepancy seems to be that the lighter females, i.e., those containing fewer eggs, have better chances of flying long distances and that it is therefore only such moths that have up to the present time succeeded in reaching New Brunswick. Lower temperatures may also possibly have a tendency to reduce the number of eggs laid, but there is no direct evidence in support of such a view.

The two points in the biology of the Brown-tail Moth that have just been mentioned are both illustrative of differences between the insect in Massachusetts and New Brunswick.

SAN JOSÉ SCALE IN NOVA SCOTIA.

G. E. SANDERS. DIVISION OF ENTOMOLOGY, OTTAWA.

In scouting for Brown-tail moth in the orchards of the Annapolis Valley during the season of 1910-1911 and 1911-12 the inspectors were, to a certain extent, on the lookout for San José Scale. As the San José Scale had never been reported from Nova Scotia, and the majority of the imported nursery stock came from Ontario, where it was considered that proper measures were taken to safeguard the buyer, the chances of finding Scale were thought to be very remote. Inspection during 1912, however, proved this opinion in regard to trees shipped into Nova Scotia to be very inaccurate.

On April 8th, while scouting the property of Thomas Wagner of Aylesford, some Stark trees of 1911 planting from Ontario were found to be moderately infested with what appeared to be dead San José Scale. It was plain that unless this was an exceptionally bad lot of trees, the finding of living San José Scale was only a matter of inspecting a large enough number, no matter how well the fumigating was carried on.

As the Brown-tail moth work occupied the time fully until May 1st, no time during that month could be spent in hunting for living Scale. The matter of finding dead Scale was reported to Principal Cumming, Provincial Secretary for Agriculture for Nova Scotia, through Dr. Hewitt, and he immediately published notices in the newspapers asking the owners of recently imported Ontario trees to report them and an inspector would be sent to examine the stock. In this way many lots of trees were reported and examined, but no living San José Scale found. In addition, the 1912 importation was examined as it arrived and it was the exception rather than the rule to find a lot of trees arriving free from San José Scale. About 30 per cent. of all trees arriving from Ontario bore more or less San José Scale. In reconsidering the situation in the Thos. Wagner orchard at Aylesford, it seemed impossible that adult female scales should remain on the trees since the autumn of 1910, although the previous examination had revealed none living. On May 28th, these trees were examined for a second time, and three living Scales found on one tree. Principal Cumming was immediately notified, and on June 3rd, a mass meeting under the auspices of the Nova Scotia Fruit Growers' Association was held at Kentville, and recommendations were made by them that a force of inspectors at once be employed to examine all recent importations from Ontario and that regulations be framed governing the further importation of nursery stock into Nova Scotia. On June 4th, regulations were passed by the Province of Nova Scotia empowering their inspectors to destroy without indemnity trees infected with living San José wherever found, and such adjacent trees as they thought necessary. Application was made by Principal Cumming to the Ontario Nursery firms doing business in Nova Scotia for a list of their customers covering the years 1910-11-12, and the largest "jobbers" in Nova Scotia at once furnished lists of customers supplied with Ontario stock by them. With these lists to start with, the first of the inspectors started working systematically from Aylesford on June 5th. The inspectors formerly employed on Brown-tail moth were the first to be taken on, on account of their knowledge of the country and of dealing with the public, and it is mainly due to this fact, that the inspection was so successfully carried on. The number of inspectors from this date until Nov. 1st varied from six to twelve. The inspectors first devoted their attention to the districts where planting was heaviest and the orchard interests most important, viz., the district about

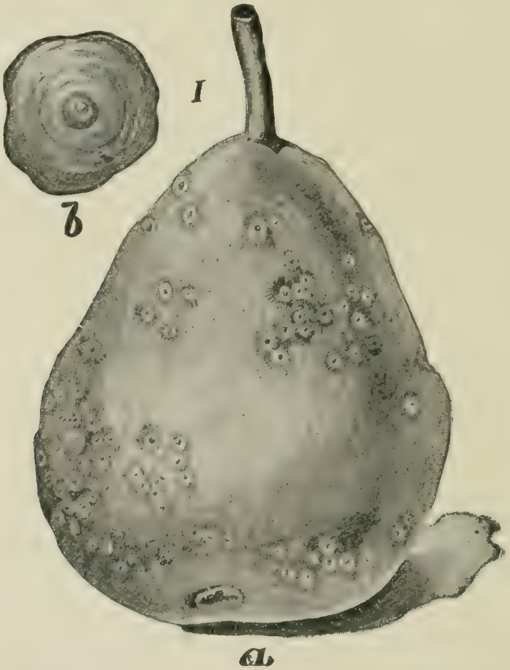

Fig. 15.—Pear infested with San José Scale.

Middleton, Berwick and Kentville. As it could not be determined if the Scale on 1912 trees was living or dead the trees of 1911 planting were first examined. About one week after starting, living Scale was found on five trees of 1910 planting. This, together with the fact that the nurseryman's lists were very slow in arriving, and in some cases very inaccurate as well as incomplete, compelled a change of programme. The lists for the time were abandoned and a house to house canvass of the whole Annapolis Valley for trees of 1910-11-12 planting from any point outside of Nova Scotia. On the first inspection all trees of 1910-11 planting were carefully examined, and on the second inspection which started about July 20th, all trees of 1912 planting were carefully examined and infested plantings of 1910 and 1911 looked over for the second time. During September inspectors were sent to the districts lying near the Valley and to the counties of Digby, Yarmouth, Queens, Shelburne and Lunenburg, while the Chief Provincial Inspector with our assistant remained in the Valley to make a more thorough inspection of some plantings which were in doubt and to attend to complaints and reports of uninspected stock, etc.

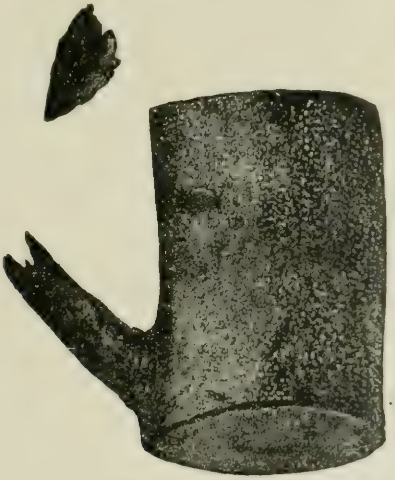

Fig. 16.—Part of stem infested with San José Scale.

During the season, the whole western portion of Nova Scotia has been covered. Every suspicious tree of which any trace could be obtained examined, and every house in the Annapolis Valley between Windsor and Digby visited in the effort to locate all recently planted nursery stock. In all 157,065 trees of 1910-11-12 planting, distributed on 1,742 properties throughout Kings, Annapolis, Hants, Digby, Yarmouth, Shelburne and Lunenburg Counties were examined. The following table gives the results of the summer's work:

——	Total No. of properties carrying outside Nursery Stock.	No. of properties carrying stock infected with San José Scale living or dead.	No. of properties carrying living San José Scale.
1910.............	247	3	3
1911.............	699	71	71
1912.............	1,023	711	127
Total.........	1,742	785	201

Total number of trees examined	157,065
Number of trees of 1910 planting destroyed	7
Number of trees of 1911 planting destroyed	345
Number of trees of 1912 planting destroyed	341
Total number of trees destroyed	693
Percentage of total planting of 1910-11-12 destroyed	0.4414
Estimated percentage of trees of 1912 planting infected	30
Number of nurserymen shipping stock infected with living San Jose Scale into Nova Scotia	8

The infected properties were scattered over Hants, Kings, Annapolis, Digby and Yarmouth Counties or about 175 miles of territory. In most cases the trees showed signs of fumigation and a large proportion of the trees in 1912 plantings showed most of the Scale to be dead. It was common to find only one or two trees bearing living Scale in a lot of 100, while often 50 to 60 per cent. bore dead Scale. Only one lot apparently arrived in 1912, which had not been fumigated. Lots of one variety from one nursery almost invariably bore living San José Scale. Whenever Scale was present on this variety, it was alive, and on the more heavily infested lots there was no dead Scale beyond the ordinary winter-kill. In one lot of 100 of these trees the inspectors destroyed 25, the highest percentage found.

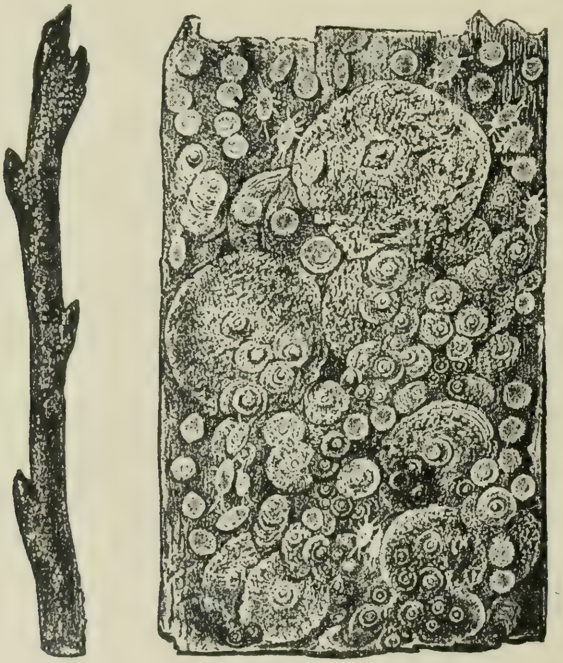

Fig. 17.—San José Scale; an infested twig, scales and larvæ on back much enlarged.

In closing, mention must be made of the high class of work done throughout by the inspectors and to the attitude of the fruit growers of the Valley to the work in hand. Soon after the work started, the Valley was flooded by letters from Ontario nurserymen, some assuring people that their trees were absolutely clean, that they had never had Scale in their nursery, and that if their trees bore Scale it had got on the stock after planting in Nova Scotia. Others cited well-known authorities to say that it was impossible for living Scale to be on their trees after the treatment they had received, and asked if they were sure that the inspctors knew San José Scale. Others went so far as to assure people that the spray for San José Scale was of so much benefit to their orchard that it was a positive blessing; and that they could not understand why the inspectors destroyed the trees. On account of the previous work of the inspectors being well and favourably known, and the fruit growers knowing what San José Scale meant to them, once they were convinced that living Scale was present, they were ready to do all in their power to help in the work of eradication. The fact that on 200 of the 201 properties on which trees were destroyed, the owners assisted the inspectors in every way, and the most common complaint was "Why couldn't you get to my place sooner?" shows that the fruit growers of the Annapolis Valley are more alive to the danger from importing noxious insects than probably any other district in eastern America. On the other hand, that the inspectors dealt with such a number of people and in spite of nurserymen's assurances and no compensation for the trees destroyed, and in only one case were slight objections made which were done away with in a few minutes, speaks for their tact and the respect which they have gained.

At the present time it seems a possibility to eradicate the Scale in Nova Scotia, although the idea is scorned by most entomologists. However, the following points are in favour of eradication: The Scale is all on trees of 1910-11-12 planting. So far it has not been found spreading from the trees on which it was imported; the people of Nova Scotia will, to a man, do everything in their power to help in the work of eradication; and lastly, Dr. Matheson, who recently took the work in charge, has to assist him under H. G. Payne, Chief Provincial Inspector, the finest lot of inspectors the writer ever had the pleasure of directing.

Mr. Caesar: On what dates did you find the scales running?

Mr. Sanders: The first scales were found moving on the trees about July 10th, perhaps earlier.

Mr. Caesar: Are you sure? July 1st is the earliest date this year for the Niagara District, and Nova Scotia has a colder climate than Southern Ontario, where the San José Scale is found.

Dr. Hewitt: I should think there would be a difference of about a fortnight between Niagara and Nova Scotia.

Mr. Sanders: The scales were very abundant about the middle of July on the trees on which they were found.

Mr. Caesar: Were they 1912 trees?

Mr. Sanders: 1912.

Mr. Caesar: Did you find any trees on which the scale was moving later?

Mr. Sanders: Yes, as late as in August.

Mr. Gibson: What is the average date for Ontario?

Mr. Caesar: The average date is between June 10th and 30th.

Mr. Caesar: Do you think that, considering climatic conditions, the San José Scale is likely to be sufficiently serious in Nova Scotia to be of economic importance?

Dr. Hewitt: We cannot attempt to answer that question, and we should give no insect the chance to become of economic importance if such a likelihood is possible and it is in our power to prevent it.

Mr. Caesar: The reason I ask this question is that in Ontario the most northerly record for the San José Scale is Woodstock, and although trees infested with the scale have been planted year after year throughout Ontario, yet east of

Toronto, where there are many young orchards and where the scale must have been sent as well as to Nova Scotia, we know of no orchard that is infested with the scale. I know that temperature alone does not control the San José Scale; but it would seem very probable that it would not thrive in Nova Scotia, as it has been prevented from gaining a foothold in Eastern Ontario by climatic conditions.

Mr. Sanders: There are two things in favor of its becoming a serious pest in Nova Scotia: First, it survived the winters of 1910-11 and 1911-12, which were quite cold in Nova Scotia. The worst infected trees we had were of 1910 planting. One of the trees was very badly infested. Second, the lowest temperature in the United States, where the scale occurs, is 15-18 degrees below zero, and Mr. Caesar has said that the scale will survive a temperature of 22 degrees below.

Mr. Caesar: For a short time only.

Dr. Matheson: In Idaho the temperature sinks to 30 degrees below, at Binghampton 40 degrees below, yet the San José Scale survives. Nova Scotia is not very different in temperature from Western New York. I have had much pleasure in listening to Mr. Sanders' paper, and speak in high commendation of his work. It is my hope that the San José Scale may be speedily controlled.

Dr. Hewitt: The discovery of the San José Scale in Nova Scotia has been in a way responsible for the appointment of two Provincial Entomologists, Dr. Robert Matheson for Nova Scotia, and Mr. L. Caesar for Ontario. Mr. Caesar will have a serious task in dealing with the question in Ontario, on account of the great interests and the many difficulties which many nurserymen raise. I know it will be a hard task for the next few years to get things in good order. The regulations passed by Nova Scotia will have a beneficial effect generally. The inspection of nurseries in Ontario is absolutely necessary, and we know that the fumigation has been and is in many cases carelessly carried out. We have assisted in bringing about this requirement concerning inspection, whereby Ontario nurserymen will not be allowed to ship stock into Nova Scotia unless inspected and found free from scale. The work of Mr. Caesar in connection with this inspection service will be of much help in this problem which we have to face.

Mr. Caesar: Much information is still wanted in Ontario. I have been thinking over many nursery questions, and had planned a thorough study of this matter before I was appointed Provincial Entomologist and before the question in Nova Scotia came up. I have not been responsible for the inspection work up to the present time. The discussion of the San José Scale in the newspapers, etc., has done a great deal of good, and anything that serves to emphasize the importance of clean stock is a benefit. The legislation of Nova Scotia will be very disastrous to the nurserymen of Ontario this year. It is claimed by the nurserymen that stock arriving in Nova Scotia after the journey, and being subjected to what would be a second fumigation there, would probably result in injury to the trees. As a test of the fumigation work in Ontario, I took heavily infested trees and placed them in various places in the fumigation building and apparently all the scale was killed. I hope that, if we get the expected grant, we may have enough men and inspectors to inspect the various nurseries thoroughly.

Mr. Gibson: Are the houses tight?

Mr. Caesar: This is being looked into. The whole question will be thoroughly investigated.

RECENT WORK ON THE APPLE MAGGOT IN ONTARIO.

William A. Ross, Division of Entomology, Ottawa.

This past season I devoted most of my time to an economic study of the Apple Maggot in Eastern Ontario. In this investigation I had a very capable and helpful co-worker in Mr. Chas. Good, a Guelph student, who acted under the instructions of Mr. Lawson Caesar, Provincial Entomologist. I am sorry I cannot eulogize my other co-worker, the weather man. He served chiefly to try my patience by substituting rain water for liquid baits, by drowning larvae, and by making everything wet and unpleasant.

I have now the pleasure of presenting to you a report of the investigation.

Emergence of Adults, Etc. In the Bowmanville orchard in which we did most of our work, adults were in evidence from the first week of July to mid-September. (The period of emergence in our rearing boxes extended from July 6th to August 20th). However, no egg laying was noticed until the third week in July.

Some entomologists have an idea that flies, developed from maggots which infested early apples during the previous season, leave the soil before those developed from late fruit larvae. However, this is merely a supposition and not a fact. According to our daily record of emergence, adults bred from fall varieties actually commenced to leave the soil before those bred from early Harvest apples.

Adults in Confinement. Our attempts to study the habits of adults in confinement met with every indifferent success. Two cages made of fly screen were hung on trees and each was so arranged that a branch bearing apples was inside it. We also constructed from the ground up a cage big enough to enclose a large branch well laden with fruit. Adults were confined in these cages. However, in place of observing these flies at work, we spent most of our time replacing their dead bodies with other adults—all, with the exception of two females, refused to live longer than four or five days in confinement. One of the exceptions completed her third week and the other lived four weeks. When fourteen days old the latter was found in copula with a sexually mature male which we had introduced into her cage. Two days after this she tried to oviposit; however, on this occasion and on all later occasions her attempts were ineffectual. She would extrude her ovipositor, raise herself and go through ovipositing motions, but she seemed to be too sluggish and lazy to pierce a passage through the cuticle, the tip of her ovipositor would merely slide up and down the surface of the apple.

I cannot understand why these confined flies did not respond in a more satisfactory way to our care. They were not cramped for room (especially in the large cage). They were provided with nourishment and moisture and lived under conditions as natural as possible.

Incubation of Egg. In ascertaining the duration of incubation of the egg, we marked newly made egg punctures, then four, five and more days after marking them we opened the punctures and examined the eggs. The average period required for incubation was six days, the minimum, four and three quarter days; the maximum nine days.

The fact that the rate of growth of the larvae keeps pace with the maturing of the fruit was noted by us, but as this interesting feature of larval development has been commented on so frequently, I shall not dwell on it.

Mortality of Eggs. The mortality of eggs is considerable. During the latter part of August after the major portion of the egg laying was done, we examined a large number of egg punctures for hatched, healthy and dead eggs. The average per cent. of dead eggs (infertile and diseased) in the September Sweet (autumn variety) was 17.1 per cent.; in the Snow (early winter variety) 34.9 per cent.; and in the Northern Spy, 17.1 per cent.

Mortality of Eggs and Larvae. The mortality of both eggs and larvae was very high in all varieties, as the following table will testify:

Variety.	Time of Maturing.	Per Cent. of Mortality of Eggs and Larvae.
Harvest	Summer	77 per cent.
September Sweet	Autumn	88 per cent.
Snow	Early Winter	97 per cent.
Spy	Late Winter	98.7 per cent.

Baits and Repellants. Adults before and during the egg laying period readily lapped up fruit juices and sweetened liquids. We served a varied diet of apple juice, diluted syrup, cut bananas and water to the flies in the cages. In our investigation of remedial measures we made use of this knowledge of the insect's feeding habits. Poisoned molasses was spread on several branches, other branches on other trees were treated in a similar way with Tanglefoot. Each Tanglefoot trap was sprayed with a different sweet smelling, attractive liquid. The essence of pear, peach and banana and citronella oil were used. Tin pans containing poisoned cider, essence of pear, citronella oil, and kerosene were also suspended on the branches of badly infested trees. However, the only bait which gave us any results was the kerosene. In seven pans of kerosene we secured at different times twenty males and eight females.

With the object of repelling egg laying females, nine tin pans containing crude petroleum were hung on a Tolman Sweet. But instead of repelling, the petroleum (or rather rain water with a scum of petroleum) attracted, as vouched for by dead flies in the tins.

Spraying. We tested two spray mixtures, one composed of arsenate of lead, glycerine and molasses and the other of paris green, glycerine and molasses, but neither yielded satisfactory results. We did not notice any adults feeding on the spray material. If any of them did, not enough died to make the spraying worth the cost.

Cultural Methods of Control. It does not seem to be possible to prevent the escape of flies from the soil by burying the pupae at a considerable depth with the plough, or by covering them with a baked crust of clay, or with a thick turf. One hundred pupae were placed at a depth of six to seven inches, and another hundred at twelve inches. Forty-one of the former and nineteen of the latter emerged.

Two plots of stiff clay, in each of which one hundred pupae had been buried at a depth of two inches, were watered and then rolled. The sun, as you can imagine, baked the top crust and made it appear as impervious as a flagstone. However, forty adults out of the possible two hundred managed to penetrate through the hard clay.

In a grass plot, sod was turned and one hundred pupae were placed beneath the thick turf. Twenty-eight adults came to the surface in this experiment.

The results obtained from these experiments will demonstrate to you the uncanny power these small, fragile looking creatures possess of working their way up to the surface.

Shallow cultivation, as a remedial measure, was given a trial. Two plots infested with pupae were worked frequently with a hoe and rake to a depth of two inches. From one plot sixty-five adults and from the other thirty-one appeared.

EXPOSURE OF PUPAE. Pupae exposed to frost and other weather agents stand a very poor chance of becoming adults. Only one male developed from two hundred pupae which were exposed over the winter and spring.

SOIL FUMIGANTS, ETC. Interesting results were derived from our work on the destruction of pupae with soil fumigants and other chemicals.

Plots containing pupae (one hundred in each) were treated with Apterite, Vaporite and Cliff's Manurial Insecticide and these fumigants were worked into the soil. Similar plots were soaked with brine, lime sulphur, pyrethrum (in suspension), kerosene emulsion and copper sulphate. The following table shows the results:—

Chemical.	Date of first Emergency.	No. Adults.	No. Adults in Duplicate.
Apterite	July 11	15	1
Vaporite	" 25	5	2
Cliff's Manurial Insecticide	" 28	3	3
Brine (2 lbs. to 1 gal.)	" 12	36	27
Lime Sulphur (1.03)	" 13	44	33
Pyrethrum (1 lb. to 20 gals.)	" 14	47	23
Kerosene Emulsion (Double Normal)	" 17	11	5
Copper Sulphate (1 lb. to 5 gals.)	" 12	44	38
Check	" 9	58	....
Duplicate Check	" 8	48	....

DESTRUCTION OF FALLEN FRUIT. Some day we may discover a satisfactory spray mixture or a perfect soil fumigant, but until that day we shall have to rely chiefly on the old remedial measure of destroying fallen fruit.

According to the data, which we have collected during the last two years, on the emergence of maggots from fallen fruit, an orchard can be freed from Apple Maggot by picking up summer apples every other day, autumn and early winter varieties every second week and winter varieties every third week.

I have with me a table which points out in a very marked way the influence which the cold and backward weather of the past summer had on the emergence of maggots:

EMERGENCE OF MAGGOTS FROM FRUIT.

Variety.	Time of Maturity.	Dropped.	Emergence.	Interval Elapsed.
1911				1911
Harvest	Summer	July 31	Aug. 3	3 days
Early Strawberry Seeding.	"	Aug. 4	Aug. 12	8 days
September Sweet	Autumn	Aug. 8	Aug. 23	15 days
Snow	Early Winter	Sept. 15	Oct. 7	21 days
Spy	Winter	Sept. 22	Oct. 23	31 days
1912				1912
Harvest	Summer	Aug. 15	Aug. 29	14 days
Early Strawberry Seeding.	"	Aug. 17	Sept. 3	16 days
September Sweet	Autumn	Aug. 24	Sept. 12	19 days
Snow	Early Winter	Aug. 27	Sept. 16	20 days
Spy	Winter	Sept. 13	Nov. 15	62 days

If you care to look at this table you will notice in the case of harvest apples that the number of days which elapsed between the dropping of the fruit and the coming out of the larvae, was four times as long this season as it was during the summer of 1911.

CHICKENS AND CULTIVATION. In endeavouring to prove that chickens will do valuable work in controlling this pest in small orchards, we covered two plots (each with one hundred pupae) with two extra large rearing boxes. We confined two hens in each box, and left them in over two weeks. The plots were kept cultivated. The chickens did not receive an over-liberal supply of food and were thus forced to scratch amongst the loose soil for a living. Their quest for food must have met with some success because no flies appeared in either box.

During the fall of 1911, 165 pupae were placed within a marked portion of a chicken run. This piece of ground must have been worked over pretty thoroughly by the hungry poultry, because only two adults escaped from it this summer.

NATURAL HOSTS. Regarding the natural hosts of the Apple Maggot I have little to say. Mr. Good and myself found it at work on a seedling crab-apple which was in close proximity to a badly affected orchard. We examined a large number of hawthorns in Durham and Hastings Counties, but discovered no trace of the insect on them. However, Mr. Swaine was kind enough to send us infested haws which were collected in the neighborhood of St. Anne's, Que., and we secured larvae and pupae from them.

VARIETIES ATTACKED. I have listed over thirty varieties of apples, which I have found attacked by the Apple Maggot in 1912, and I am strongly inclined to think that no variety is exempt. Harvests, Sweets (September, Tolman, etc.), Snows, and Spies are probably the most seriously affected varieties in Ontario. Acid apples such as Astrachan and Duchess are much less subject to injury than sub-acid and sweet varieties.

VARIETIES ATTACKED AND DEGREE OF INFESTATION.

Degrees: Very high......1 High........................2
Medium........3 Low........................4
Very low..5

Variety	Degree of Infestation	Remarks, etc.
Alexander	4	Sometimes badly attacked.
Astrachan	4	
Baldwin	5	
Bellefleur	3	
Ben Davis	3	
Crab-apple	2	Only one variety and this early ripening.
Culvert	3	
Duchess	5	According to F. Dempsey—2.
Gravenstein	2	
Greening	3	
Holland Pippin	4	
Hopkins Seedling (Red Astrachan in character)	4	
Hurlburt	4	
Jennetting	3	
Johnson's Seedling	2	
King	5	
Maiden Blush	4	
Mann	5	
Pewaukee	4	
Russet	4	
St. Lawrence	3	
September Sweet	1	
Snows	2	Sometimes very bad.
Spy	2	
Stark	4	
Strawberry Seedling (Red sweet apple)	1	Mrs. Belman, Bowmanville. Meadows, Port Hope.
Tolman Sweet	1	
Wagners	3	
Wealthy	3	
Yellow Harvest	1	
Yellow Transparent	4	

COMMENTS. In some orchards certain varieties may be exempt from attack, whereas in others these same varieties may be badly infested. In an orchard near Bowmanville none of the Ben Davis were punctured; on the other hand, in a place near Port Hope and another near Stirling this variety was badly attacked.

In affected orchards seedling trees are practically always badly infested.

DISTRIBUTION. Chiefly through the courtesy of Mr. Caesar I have records of the occurrence of this pest in the following counties of Ontario:—Prince Edward, Hastings, Frontenac, Northumberland, Durham, Ontario, Wentworth, Lincoln, Welland, Norfolk, and Carlton.

I should be very grateful if any member of this Society would add to this list.

MR. GIBSON: Some years ago I carried on some breeding experiments. The depth to which the larvæ burrow in confinement is of much interest. In one jar I had put about eight inches of earth, and some of the larvæ burrowed to the bottom of the jar, where they pupated.

MR. ROSS: I had twelve inches of earth and ninety per cent. emerged.

DR. HEWITT: What was the usual depth?

MR. ROSS: Possibly about three-quarters of an inch. Most of them.

Dr. Hewitt: I think Mr. O'Kane of New Hampshire found that the average depth of pupation was one and a half to two inches. It is an important point to decide at what depth the larvæ usually pupate in connection with any system of cultivation as a means of control. The insect I am most familiar with, namely the house-fly, can emerge in sand from a depth of five to six feet, and I have no doubt that the Apple Maggot can emerge from a greater depth than eight inches in a light soil; a great deal depends on the character of the soil.

Mr. Ross: These larvæ had bored in sandy soil. The larvæ of course pupated differently. Under fallen fruit and in the fallen fruit itself, especially in the case of crab-apples. Of course the percentage of mortality of pupæ is very high.

Dr. Hewitt: Have any pupated in merchantable fruit?

Mr. Ross: No.

Mr. Swaine: How is the fruit destroyed? Is it sufficient to cover it with lime and earth.

Mr. Ross: I did bury some with lime, and twenty per cent. came through.

Mr. Swaine: I know of a certain Mr. Shepherd, who boiled the infested fruit and fed it to stock.

Mr. Ross: I must mention that in the evaporators there are quantities of infested fruit used.

INSECTS OF QUEBEC FOR THE YEAR 1912.

C. E. Petch, Division of Entomology, Ottawa.

Not arriving until the latter part of July at the Field Laboratory, Covey Hill, Quebec, my report will be somewhat faulty.

The Tent-caterpillars were very bad this year; many unsprayed orchards were entirely defoliated. From observations, I believe that the Forest Tent (*Malacosoma disstria*) is worse than the Apple Tent (*Malacosoma americana*). Some Hymenopterous parasites were reared from the pupæ of the Apple-tent. Some twenty bee-hives were entirely destroyed by bee-moths. Both the Larger Wax-Moth (*Galleria mellonella*) and the lesser Wax-Moth (*Achroia grisella*) having been present. Several plum and birch trees were badly infested with Terrapin Scale (*Eulecanium nigrofasciatum*). Oyster Shell Scale (*Lepidosaphes ulmi*) was very plentiful. Large numbers of the scales were found on the fruit of the apple and the plum, causing it to be greatly mis-shapen in many cases,

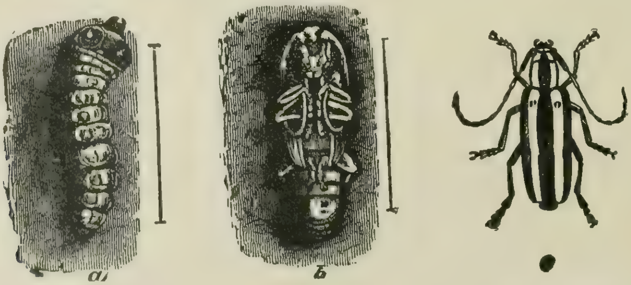

Fig. 18.—Round-headed Apple Tree Borer (*Saperda candida*): *a*, larva; *b*, pupa; *c*, adult.

especially Duchess apples. The Green Aphis (*Aphis pomi*) was very plentiful, especially on nursery stock, and suckers. Some of the people sprayed with arsenicals to control it. It caused discoloration of Yellow Transparents by little red spots forming. The leaves of some maple trees were falling about the middle of August because of aphis injury. Buffalo Tree Hoppers, Snowy Tree Crickets, Blister Beetles, and Flea-beetles were fairly common. The foliage on a few plum trees was very badly distorted by numerous finger-like galls caused by *Eriophyes sp*.

The bees in this district were found to be suffering very badly from European Foul brood (*Bacillus alvei*). Grasshoppers and Potato Beetles were not very plentiful. The Apple Leaf Miner (*Tischeria malifoliella*) was extremely prevalent in some orchards. Grape vines and Virginia creeper were very badly attacked by leaf-hoppers (*Typhlocyba comes*). They lost the greater portion of their foliage very early owing to these insects. Both apple-tree borers (*Saperda candida* and *Chrysobothris femorata*) were present in considerable numbers. Stink Bugs (*Pentatomidae*) were common and the Tarnished Plant Bug (*Lygus pratensis*) appeared in large numbers, especially in the hoed crops, late in the season.

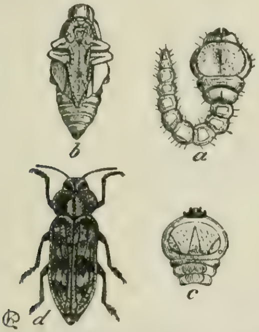

Fig. 19.—Flat-headed Apple Tree Borer (*Chrysobothris femorata*): *a*, larva; *b*, pupa; *d*, adult.

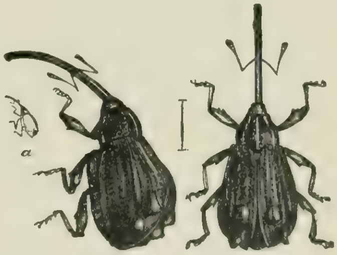

Fig. 20.—Apple Curculio.

The four most important insects in this district were the Apple Maggot, or Railroad Worm (*Rhagoletis pomonella*), Codling Moth (*Carpocapsa pomonella*), Plum Curculio (*Conotrachelus nenuphar*) and the Apple Curculio (*Anthonomus quadrigibbus*), and they rank in that order as to injury.

The Apple Maggot was most injurious on Tolman's Sweet, Alexander, and Lowland Raspberry. Mr. R. W. Sheppard, Como, P.Q., reports severe injury due to this insect. Mr. Ross has worked especially on this insect and I leave him to describe it in detail. The Codling Moth was plentiful, and it has received Mr. Caesar's careful attention, I leave any questions about it for him to answer. The most injurious insects are the curculios. In some cases this year the fruit could not be sold, because it was so badly disorted. Plums, apples, and pears were badly affected. The plum curculio was the more injurious one on Duchess.

The Apple Curculio *Anthonomus quadrigibbus*, however, is the more important of the two in this distict, and is the most injurious insect in the vicinity of Covey Hill. So far as I could find out, it has received very little attention, and is reported in books and bulletins as "sometimes injurious." However, in this district it is deserving of a thorough investigation. It was reported by Mr. N. E. Jack, Chateauguay Basin, P.Q., as very injurious to early apples.

It can be easily distinguished from the Plum Curculio by its snout, which is as long as the rest of its body, and is carried straight in front. It has, also, four humps on the sloping portion of its elytra. It is light-reddish-brown to dark-reddish-brown in color, and is about one-quarter inch to one-third inch long. It does injury by egg-laying and feeding. I am not able to state at what stage in the growth of an apple the eggs are laid, but the result of an egg-puncture is a hard green core, which penetrates, generally, nearly to the centre of the apple. These green cores spoil the fruit for either eating or cooking purposes, because they remain as hard lumps even after cooking. Egg-punctures, also, cause the apples to become distorted. They started to feed on the fruit the first week in August this year and were found as late as September 3rd. They started to feed first on the early varieties. They entered the soil first on August 29th. However, had the weather not been so cold just then, I would have expected them to feed until a much later date. Sanderson says: "They feed very little before they enter the soil for the winter." I do not agree, because as many as forty to sixty feeding punctures on one apple were common.

Life History. The number of eggs to hatch was a little over 28 per cent. The number of eggs per apple varied from one to many. One specimen of Tolman's Sweet had twenty. The larvæ are white or yellowish-white, about one-half inch long when full grown, footless, and possess an enlargement of the anterior abdominal segments, which prevents them from straightening out. They eat large irregular tunnels in the fruit. The change into the pupal stage takes place within the fruit. The pupal stage was found to be between five and six days. The adults emerge from the fruit and then begin to feed. They pass the winter in the soil, but I cannot say whether the nature of the soil would have any influence on the depth, nor do I know the depth at which they winter. In many cases they do not leave the fruit before it is picked; therefore, they could easily be spread in the larval or pupal condition in the shipment of the fruit.

Whether they would survive the winter or not in barrels is a question which remains to be answered. The adults are most commonly seen on the fruit the second and third weeks in August. They hold tenaciously to the fruit. They feed on either end and sometimes on the cheek. In only one case was more than one Curculio found on a single apple and in this case there were two, one on each end. When disturbed they remain very quiet, and in many instances feign death. They do not fly readily, and are slow in their movements. They are not attracted by lights placed in the trees at night. Ten bands of Tanglefoot were placed on the trunks of trees, but only two specimens were captured. Many attempts were made to attract them to poisoned honey, kerosene, molasses, tanglefoot and essence of pear, but without results. Where trees were sprayed with either lime-sulphur or Bordeaux mixture, the injury was greatly lessened. These substances probably act as repellents. Heavy rains did not interrupt these insects from feeding. Haws and wild crabs are given as their natural hosts and as causes of their prevalence. However, in this orchard where they were so numerous there was only one Haw tree, while the seedling crabs were not seriously injured by them. The only cultivated, pruned and properly sprayed orchard in the district was entirely free from its injury, while two years ago the injury was very serious and last year to a considerable extent. From this it would appear that a man could keep his orchard free from this insect regardless of the actions of his neighbors, and, also that by the above methods the past can be completely controlled.

The varieties worst injured by egg punctures were Tolman's Sweet, Greening, Golden Russet, Ben Davis, Alexander, and Duchess. The worst injured by feeding were Tolman's Sweet and Alexander. They were extremely injurious to Bartlett Pears.

I have nothing to offer in the way of remedies, because I have not performed any experiments as yet in cultivation or spraying. Jarring is offered by Sanderson as a remedy. How effective this may be on young trees, I cannot say, but to shake them from old trees would result in a large loss of fruit because they hold to it so firmly.

My reasons for dealing at such length on this insect are: first, it has not received any careful investigation; and, secondly, it is the most injurious insect on apples and pears in this portion of Quebec.

INSECTS OF THE SEASON IN ONTARIO.

L. CAESAR, B.A., B.S.A., GUELPH.

With a few exceptions this season has been comparatively free from any serious insect injuries, several of our worst pests being much less destructive than usual.

ORCHARD INSECTS.

CODLING MOTH (*Carpocapsa pomonella*). This insect has not been so abundant as usual, probably because the wet, cold season retarded development and so lessened the percentage of the second brood. Each year very gratifying progress is being made in the number of fruit growers who are meeting with excellent success in controlling the Codling Moths by thorough spraying. It is worth noting that only those who spray very thoroughly, so that the trees having much bloom are literally drenched, are getting really satisfactory results. This sort of spraying is also giving us apples free from scab and no injurious results are reported from it. I do not recommend so heavy spraying for any later applications that may be given.

LESSER APPLE WORM (*Enarmonia prunivora*). This caterpillar which so closely resembles the codling moth larva is found in abundance almost every year in haws. It is apparently not very destructive to apples in the Province. I have found it attacking apples at Guelph and in the Niagara District. This year infested apples were sent in from Prince Edward County on July 7 which contained larvæ almost full grown. Both of these had entered by the calyx end and were feeding a short distance below the inner cavity. I mention this as indicating that these larvæ evidently mature about as early as the earliest Codling Moth larvæ. There is, of course, a second brood. I also found the larva in sour cherries this year at St. Catharines.

PLUM CURCULIO (*Conotrachelus nenuphar*). As usual, much damage was done by this beetle to cherries, plums, peaches, apples, and pears. I did not, however, see so many evidences of its fall work on apples as usual: whether this was due to the wet weather I cannot say. Apricots, wherever grown in the Niagara District, seem to be particularly attractive to the Curculio.

APPLE CURCULIO (*Anthonomus quadrigibbus*). Last year I found many of this species feeding upon haws at Grimsby, but none on apples. This year I took a single specimen on apple in June about ten miles from Winona (Niagara District). I believe Mr. Swaine found it fairly common near Montreal a year or two ago.

BUD MOTH (*Tmetocera ocellana*). Many complaints have been made of the damage done by the larvæ to buds. I have seen them quite abundant occasionally, but, with the exception of young trees not yet bearing fruit, I cannot say they have been so destructive as many growers claim. So far as I can judge, well sprayed orchards are seldom much troubled. Apparently the early part of this season was unfavorable to the larvæ and many died, but in spite of this, there was an average number of infested leaves this autumn showing evidence that sufficient had been left to produce a normal number next spring.

CASE-BEARERS (*Coleophora fletcherella* and *C. malivorella*) were not so numerous as usual.

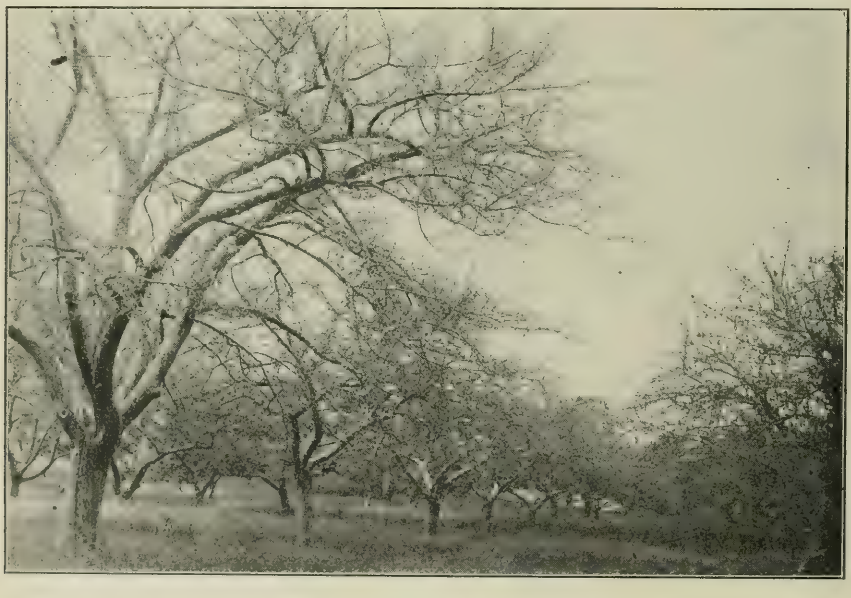

Fig. 21.—Orchard defoliated by Fall Canker-worms.
(Photo taken about June 12th.)

PALMER WORM (*Ypsolophus pomotellus*) which was very abundant in many orchards in Western Ontario last year was greatly reduced in number this year, though a few could be found in almost any district.

AMERICAN TENT CATERPILLAR (*Malacosoma americana*). In the western half of Ontario this species has been increasing in number but is not yet at all abundant. east of Toronto, however, it has been a scourge this year, especially from about Brighton eastward, getting worse the farther east one went. Unsprayed orchards were badly defoliated, but it is a pleasure to report that in every case where orchards received the application with lime-sulphur before the buds burst and lime-sulphur with arsenate of lead just before the blossoms began to burst, there was scarcely a nest to be found. A number of the sprayers reported that they felt sure the strong lime-sulphur alone of the first application had killed most of the larvæ.

FALL CANKER-WORM (*Alsophila pometaria*). This old foe of orchards and other deciduous trees was much more abundant and destructive this year than I had ever seen it before, but as usual it was confined to a few localities. At Dundas and near Stoney Creek several orchards lost almost all their foliage through its attacks. From two or three other districts similar reports of injury were sent in. This photograph was taken by Mr. Baker and me in an orchard near Stony Creek and shows the sort of work done by this pest. Fortunately, one of our fourth year students had rented a badly infested orchard in the district. He sprayed this very thoroughly shortly before the blossoms burst and succeeded in getting such excellent results that not enough caterpillars escaped to do any appreciable damage. The worst orchards I saw were in sod. From caterpillars brought to Guelph by Mr. Baker numerous females and a few males are now, Oct. 11, emerging.

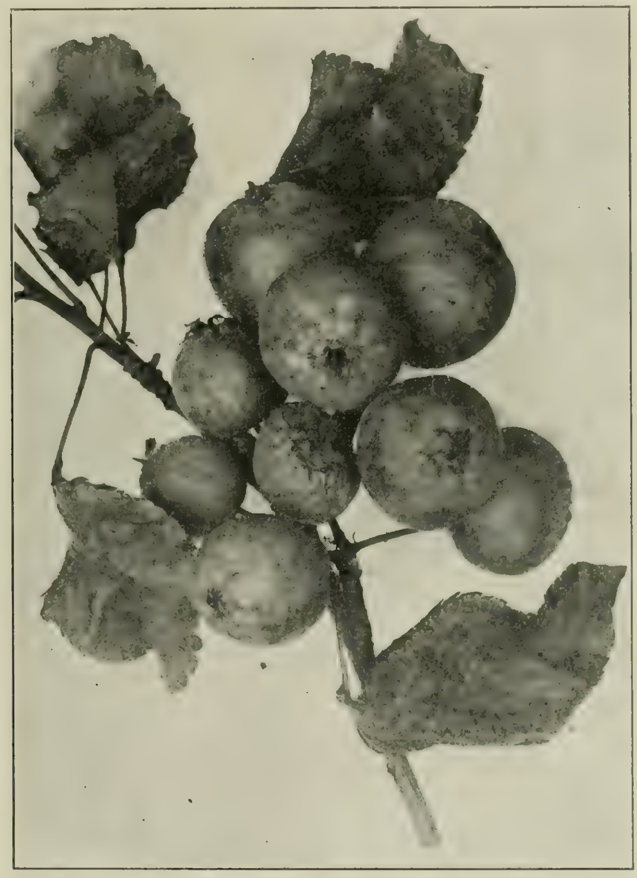

Fig. 22.—Cluster of small, woody, deformed Apples, caused by the feeding of aphids in the twigs and fruit.

APHIDS. This has been one of the worst seasons we have had for Aphids, the wet spring giving them an excellent start. On bearing apple trees by far the most destructive species in the Niagara District was the Rosy Aphis (*Aphis sorbi.*)

In many orchards the ravages of this pest caused such a large number of the leaves on the lower branches to turn sickly and yellow, that the trees looked very unsightly until these fell off. Much of the fruit was deformed and hung in clusters of dwarfed apples.

Aphis avenae seemed to be the next most common species and was very destructive to nursery stock and young orchards in August and September. I identified these two species, but was not sure whether *Aphis pomi* was present or not. I think that if it was, it must have been in small numbers. About the first week in July both *Aphis sorbi* and *A. avenae* disappeared from apple trees.

The BLACK APHIS OF THE CHERRY (*Myzus cerasi*) also disappeared at this time, but I could not be sure whether this was due to migration or the attack of Ladybird beetles and other predaceous insects. It had been somewhat more abundant than usual.

The CURRANT APHIS (*Myzus ribis*) was also every abundant and did much damage. About fifty per cent. of this species were parasitized by one or more hymenopterous parasites. The adults of these could easily be seen and were quite numerous. There was no evidence of any parasitic work on *Aphis sorbi* or *A. avenae*, although predaceous insects, especially Ladybird beetles and their larvæ, were very helpful. I saw no signs of any fungous disease attacking any species.

In the early part of June there was a moderate number of Peach Aphids (*Myzus persicae*) present, but they did very little damage and soon disappeared.

The WOOLLY APHIS (*Schizoneura lanigera*) could be found in almost every orchard but not in unusual numbers.

Mr. Baker and I planned some experiments on the control of Aphids early in the season, when the buds were just ready to burst. At that date we applied Black Leaf 40 along with the regular spring strength of lime-sulphur to two badly infested trees. Examination of these trees a day or two later showed that almost every Aphid had been killed. On check trees they were still alive. Further tests with other mixtures were made, but we have not yet found anything so good as the above. There is need, however, of a cheaper remedy than Black Leaf 40. I have very little faith in lime-sulphur as a remedy for aphids of the orchard.

SAN JOSÉ SCALE (*Aspidiotus perniciosus*). Every year or two we hear of some new district into which this scale has gone. This year Mr. McNeil of Ottawa wrote to me that it was reported to be in an orchard near Woodstock. I went up to investigate and found about a dozen trees nearly killed by it and all the rest of the orchard infested. Clearly it had been in the orchard for about four years without any one knowing what it was. Mr. Kydd of the Fruit Branch, Toronto, and I held a demonstration meeting in this orchard in October. Arrangements have been made to have the orchard sprayed and looked after by the Department as one of its regular demonstration orchards. This seemed the wisest course to pursue, so that an example of thorough work might be set. Two neighboring orchards are just becoming infested, but no injury has been done to either yet. Though the scale is spreading, the use of lime-sulphur and thorough spraying is spreading still more rapidly. In Essex, one of the worst scale districts, the Representative wrote to me a few days ago that more spraying was done last year than in all the years before taken together. It occurred to me that the severity of last winter might show a much diminished number of scales this year, but apparently it had little effect.

Blister Mite (*Eriophyes pyri*). In a large number of unsprayed orchards this mite is doing much to prevent average crops of apples. I sprayed a very badly infested orchard this spring to test the comparative effect of spraying before the buds had begun to burst and when they were bursting. April 25 and May 6 were the respective dates. Both gave excellent results; better than I had even hoped for.

Brown Mite (*Bryobia pratensis*) or Red Spider (*Tetranychus bimaculatus*). In the Niagara District the foliage on many plum trees—whole orchards in fact—had a dull grayish color, indicating clearly that something was wrong. On examination towards the end of August it was quite evident that some mite, probably the Brown Mite, from the way the eggs were found all over the leaves and along the midrib on the upper surface, and also from the absence of any silken web on the under surface, had caused this appearance. Unfortunately the mites had almost all disappeared. A few Red Spiders were seen, but I doubt whether these were the offenders. It is probable that the reason that lime-sulphur sprayed plum trees in the neighborhood had healthier foliage than Bordeaux sprayed ones was due to the efficiency of lime-sulphur against mites.

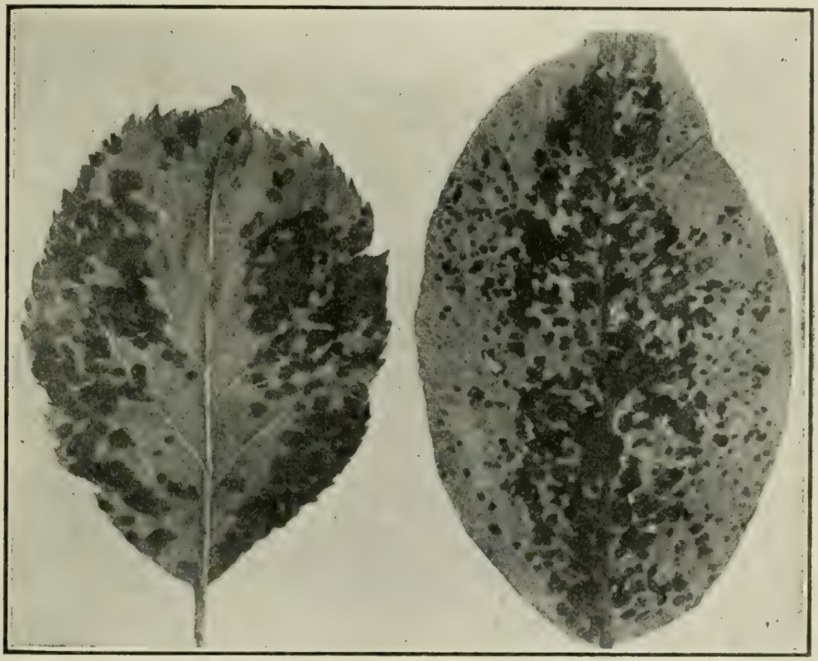

Fig. 23.—Blister Mite work on apple and pear leaves.

Injury by Red Spiders to Currant leaves in the Niagara District was very noticeable.

Pear Psylla (*Psylla pyricola*). Early in the spring a good many psyllas were seen, but with the coming of the wet, cold weather they soon disappeared, and I saw none again until July 12, when a few nymphs were observed. They did not become numerous enough anywhere, I think, to do any appreciable damage.

Cherry Fruit Flies (*Rhagoletis cingulata and Rhagoletis fausta*). These two flies were about equally common, and did more damage to Montmorency cherries than the Plum Curculio. In some orchards it was difficult to find one cherry out of five that did not contain a maggot. A few experiments on control measures were tried, but there was not time to do the work thoroughly. I am expecting to study these pests more carefully next year.

Apple Maggot (*Rhagoletis pomenella*). As Mr. Ross is giving an address on the joint work being done on this insect by the Ottawa Department of Entomology and our Department, I shall not make any further remarks on it than merely to say that I hope that next year may be more favorable for the study of this insect than this has been, and that if so, we may be able to finish the investigation in Ontario unless some new phase of the subject presents itself to us.

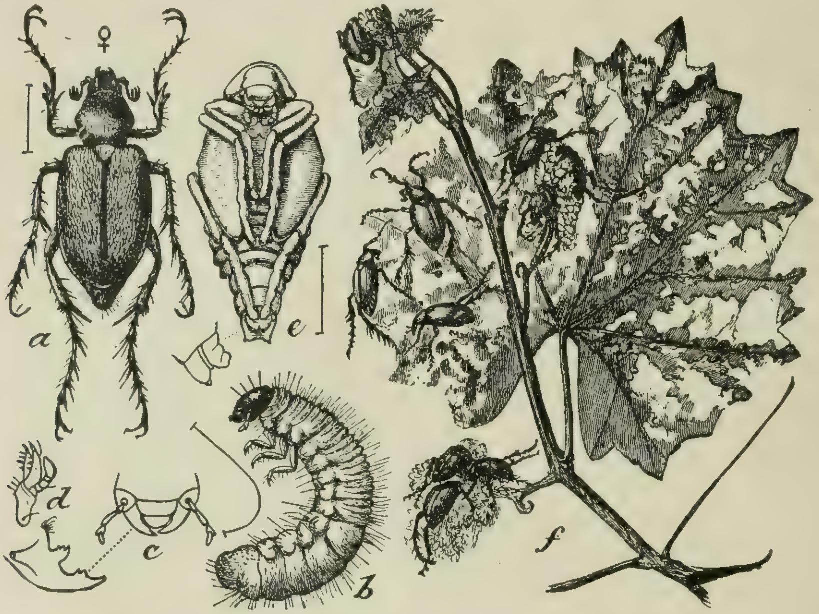

Fig. 24.—Rose Chafer (*Macrodactylus subspinosus*): *a*, beetle; *b*, larva; *c* and *d*, mouth parts of same; *e*, pupa; *f*, injury to leaves and blossoms with beetles, natural size, at work. (After Marlatt, U. S. Dept. Agriculture.)

Rose Chafer (*Macrodactylus subspinosus*). In most districts the Rose Chafer did much less damage than usual, but in one or two cases it appeared in new districts and did considerable damage to grapes, raspberries, and young cherry trees. A district thus attacked was composed of a few orchards between Beamsville and Lake Ontario. In one of the orchards arsenate of lead—four pounds to forty gallons—sweetened with about a gallon of molasses was sprayed on the trees and vines. The owner did not know whether it had done any good or whether the

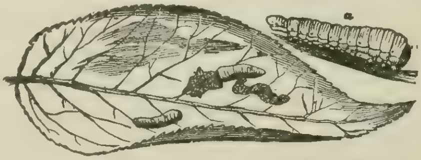

Fig. 25.—Pear and Cherry Slug.

beetles had largely disappeared of their own accord. As I was interested, I visited the orchard and examined the ground around the trunks of several small sprayed cherry trees and in each case found dead beetles. It looked to me very much as though the spray had been at least fairly effective.

PEAR AND CHERRY SLUG (*Eriocampoides limacina*). Though not quite so conspicuous as usual, the work of this pest was easily visible in almost every district. Young cherry trees were usually worst attacked; pears suffered but little.

GRAPES AND BUSH FRUITS INSECTS.

GRAPEVINE LEAF-HOPPER (*Typhlocyba comes*). This leaf-hopper was present in most vineyards but was not so destructive as last year.

CURRANT STEM-GIRDLER (*Janus integer*). Two years ago I reared this saw-fly from currant twigs sent me from Lambton County. In June of this year I found its fresh work at Fruitland. A considerable number of currant twigs had been girdled but not a sufficient number to cause any alarm. The owner of the plantation had never seen the injury before and was anxious to discover the cause.

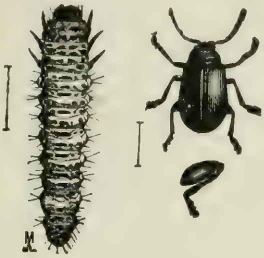

Fig. 26. — Grape-vine Flea-beetle and larva, much enlarged; also leg, greatly magnified.

IMPORTED CURRANT BORER (*Aegeria tipuliformis*). In almost every currant plantation a very large number of canes are attacked by this insect

THE GRAPEVINE FLEA-BEETLE (*Haltica chalybea*). Several vineyards in the Niagara District were somewhat severely attacked by these beetles. The larvæ could be easily found on wild grape leaves in June.

RASPBERRY ROOT-BORER (*Bembecia marginata*). Old raspberry plantations in the Niagara District are very badly infested by this borer.

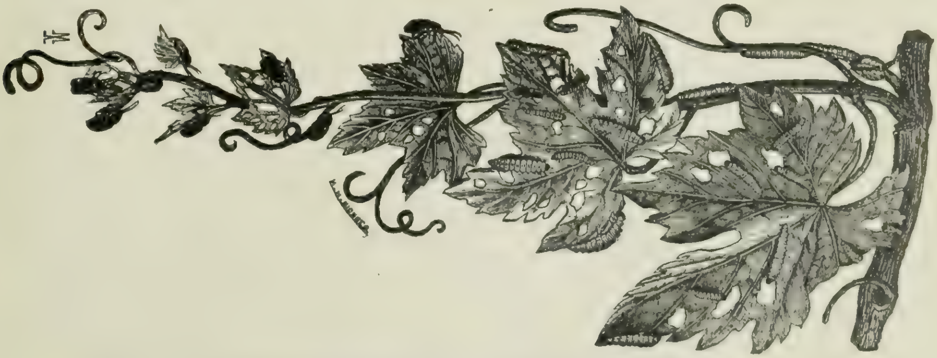

Fig. 27.—Grape-vine Flea-beetle, showing beetles and larvæ at work.

Blackberry Leaf-miner (*Metallus rubi*). This leaf-miner is still abundant in parts of the Niagara District. Fortunately it does almost no damage until about the middle of July. By this time the forming fruit is getting well advanced. Control seems difficult. Kerosene emulsion has been recommended, but in my tests it proved useless, as it could not penetrate even the dead epidermis. The insect passes the winter in the ground in the larval stage in a small, round, earthen case abut 5 m.m. in diameter. Possibly removing the earth to a depth of about two inches from underneath the bushes in spring, followed by frequent cultivation, might destroy the larvæ or pupæ. The cases, however, do not break very easily.

Raspberry Cane-borer (*Oberea bimaculata*). Dr. Bethune received several letters containing specimens of this insect's work but not so many as in previous years. I saw almost no sign of its presence in the Niagara District.

Strawberry Weevil (*Anthonomus signatus*). Specimens of this tiny weevil were sent in from Brant County, where it was doing sufficient injury to attract the attention of some growers. It occurred in small numbers in one or two other localities.

Insects Attacking Vegetables.

Cutworms. Very few outbreaks of Cutworms have been reported. At Burlington there was considerable damage done to cabbage and other closely allied plants by what I believe was the Red-backed Cutworm, but this is the only case I can recall of anything like an outbreak this year.

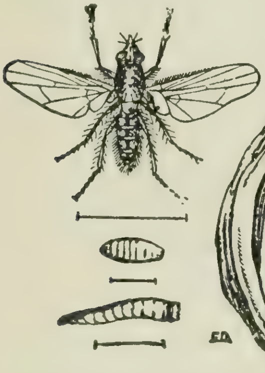

Fig. 28.—Onion Maggot and Work.

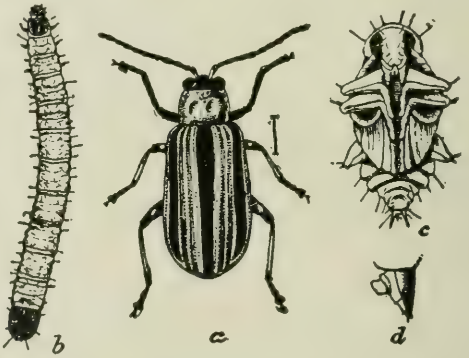

Fig. 29.—Cucumber Beetle, larva and pupa.

Onion and Cabbage Maggot (*Pegomyia brassicae* and *P. cepetorum.*) These insects were not so abundant as last year.

Cucumber Beetle (*Diabrotica vittata*). Comparatively few of these beetles were to be seen in most places visited.

Asparagus Beetles (*Crioceris asparagi* and *C. 12-punctata*). These two beetles were moderately abundant at Guelph, but very few complaints came in about them. (Fig. 30.)

Colorado Potato Beetle (*Leptinotarsa decemlineata*). It is a pleasure to be able to report that Perillus bioculatus var. claudus seems to have passed the winter safely in most districts and to have done much to control the Potato Beetle. This friend is quite common at Guelph and in many other parts of Western Ontario. I have had it reported from as far east as about eight miles from Ottawa. I sent a few live specimens to the latter district where this year the insects were found. The specimens had been freed in the potato field.

INSECTS ATTACKING CEREALS AND GRASSES.

WHITE GRUBS AND WIREWORMS. Many complaints were received of injury to grain crops and potatoes by these larvæ, especially from Western Ontario.

HESSIAN FLY (*Mayetiola destructor*). The Hessian Fly has in many districts been unusually destructive. As soon as I saw that some wheat fields had as many as fifty per cent. of the plants destroyed, I sent out a circular letter outlining the most up-to-date methods of control. As the wet weather prevented almost any early sowing, it will be interesting to see the result next year. Many parasites were found to be present, but whether they would be in sufficient number to control the flies next year unaided is very doubtful. They are easier to rear than the Hessian Fly and are apparently present in considerable numbers almost every year.

GRASSHOPPERS. In spite of the wet season grasshoppers were very destructive in a few districts, and especially in parts of Norfolk County.

RARE OR UNCOMMON INSECTS.

Alabama argillacea. Large numbers of this moth were seen around electric lights at Woodstock on Oct. 11. Specimens were sent to me by Mr. James Dunlop of that town, who said that at some posts they could have been shovelled up like a swarm of bees. Last year it will be remembered we had also a visit from these Southern moths.

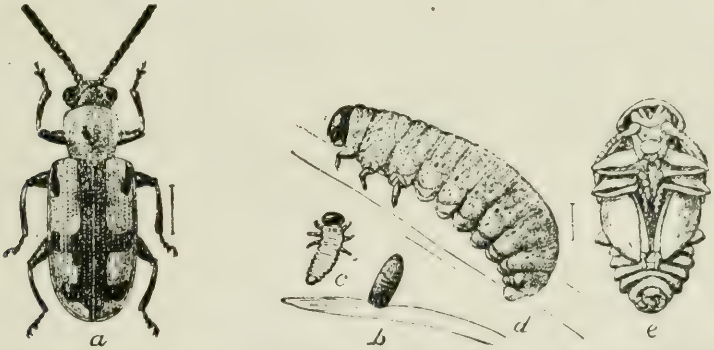

Fig. 30.—Asparagus Beetle: *a*, adult; *b*, egg; *c*, young larva; *d*, full-grown larva; *e*, pupa.

Typhoea fumata. This little brown beetle, belonging to the family Mycetophagidae, was sent to me by the "Farmer's Advocate" from a man who said that for two years it had been injuring the wheat in his granary and had caused it to heat. Whether it was the real cause of the heating I do not know, but believe it is worth while recording this beetle as a granary pest in the Province, since it is rarely, if ever, mentioned in any Canadian reports on granary insects.

MAPLE LEAF-ROLLER (*Cenopis pettitana*). A correspondent at Kenmore, near Ottawa, sent me specimens of the larvæ which he said were injuring the foliage of his sugar maple woods greatly. I reared the adults and sent specimens to Mr. Gibson, Ottawa, who identified them as *Cenopis pettitana.* Mr. Baker and I also obtained larvæ from elm trees in the Niagara District. The adults from maple and elm looked to be the same and Mr. Gibson could see no difference.

Tortrix conflictana. Mr. Baker found this species in great abundance in Toronto. Mr. Gibson kindly identified it for him.

Mr. Gibson: I was interested in Mr. Caesar's remarks on the Cotton Moth. A few weeks ago I had a letter from Mr. Calvert, of the Normal School, London, Ont., enclosing two photographs of Cotton Moths which had been taken at London, with a report that the insect had been enormously abundant. The moth was noticed at Ottawa on October 15th, but only in small numbers. When in New York City, in the middle of last month, I saw a flight of this moth. Thousands of specimens were present in Broadway, flying into restaurants and other brightly lighted places, where they could obtain an entrance.

Dr. Hewitt: In reference to the Cotton Moth, I just received this morning a note from Dr. William Saunders, late Director of the Experimental Farms, who was one of the original founders of the Society, but who was unfortunately compelled to discontinue an active interest on account of increasing duties. He encloses a short interesting paper on the Cotton Moth, and he has asked me to communicate it to the Society. Further, he wishes to be kindly remembered to any members of the Society who may inquire of him. (Dr. W. Saunders' paper was then read by Dr. Hewitt.)

AN INVASION OF COTTON MOTHS.

Wm. Saunders, C.M.G., London. Ont.

On the night of Thursday, October 10th, 1912, there appeared about the electric lights at the station of the Canadian Pacific Railway in London, Ont., a great swarm of moths of the Cotton Leaf Caterpillar (*Alabama argillacea* Hbn.) About the electric lamps the air was laden with the moths, which were estimated by those who saw them at two inches or more in depth on the floors of the railway station. The following night, Friday, October 11, they appeared again in great numbers, when the enclosed photograph was taken, which, although showing them in decreased numbers, is convincing evidence of the formidable character of the invasion. (Photograph passed around at meeting.) I heard of the arrival of the insects on Friday night, when, on looking through the rooms of my house, we captured four specimens of the moth. As this was nearly half a mile from the railway station it shows that they had found their way into buildings for some distance from the main point of their occurrence.

I was not able to visit the scene of their great abundance until Saturday morning, when I found the sidewalks and the ground about the electric lights strewn thickly with the dead moths. It was not easy to make even an approximate estimate of their numbers, but under one of the electric lights where the moths had been very abundant I should not think that 10,000 or even 50,000 an excessive estimate.

I found living specimens in good condition hiding in sheltered spots about the windows and doors of the station; on one window I counted 24, all good specimens.

In a letter from my son, Dr. A. P. Saunders, written Oct. 11, 1912, from Hamilton College, Clinton, New York, he says:

"We had an invasion here in Clinton on Oct. 6th of the Cotton Moth (*Alabama argillacea*); they came just before dawn. The night watchman told me he could not see the electric light for the moths. When I got down town about noon the following day there were from 10,000 to 100,000 under each one of the few arc lights in the village, and a good many under the little incandescent lights. Under each of the arc lights the moths formed a patch about 10 feet across, where they literally covered the ground. Thousands of them had been crushed by wagons, but there were also thousands and thousands of perfectly fresh specimens towards the edge of the road. All the electric light poles, the neighbouring trees, shop fronts, and indeed everywhere where there was light was well supplied with specimens. I took about a hundred as a memento of the occasion. These moths may have been brought up here by high winds in the upper air currents. The vast majority of the specimens that had not been crushed looked as fresh as if they had only been out a day, so that one cannot think of them as having worked their way up by slow degrees. They seem now to have disappeared, at least I have seen none since, except one that I unconsciously brought home on my coat, and which has since been about the house."

In London the moths were found in greatest abundance about the C. P. R. railway station.

INJURIOUS INSECTS OF QUEBEC IN 1912.

Prof. Wm. Lochhead, Macdonald College, Que.

The season of 1912 was quite abnormal in Quebec on account of the large rainfall in May, June, August, and September. No doubt this excessive precipitation affected to some extent the insect life, but the exact relations are difficult to determine.

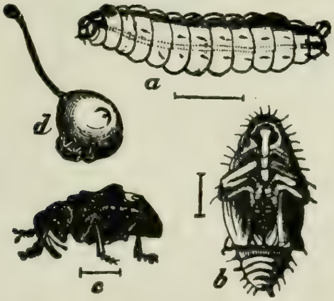

Fig. 31.—Plum Curculio: *a*, larva; *b*, pupa; *c*, beetle; *d*, young fruit attacked.

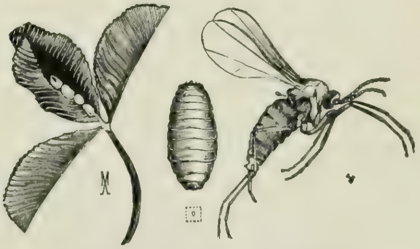
Fig. 32.—Clover-leaf Midge.

Tent Caterpillars. The most abundant insects of the season were the two common species of Tent Caterpillars (*Malocosoma americana* and *M. disstria*). They appeared in immense numbers in most districts of the province and caused much injury to orchard and fruit trees, *M. disstria* (Forest Tent Caterpillar) being the more abundant species. A disease, apparently bacterial, broke out among the caterpillars about June 11th and killed many, the mortality being greater among the caterpillars of *M. americana*.

An effort was made to determine the extent of parasitism present. Ichneumons were obtained from *M. disstria,* but not in sufficient numbers to cause any appreciable diminution in numbers.

In the insectary *M. americana* started pupating on June 8th, and *M. disstria* on the 21st. Adults of both species about July 5th.

Bud Moth. This small insect was very abundant on the Island of Montreal in May and June. In one instance more than 100 specimens were obtained from a small five-year-old apple tree. Pupation occurred about June 15th, and adults appeared on July 9th.

Buffalo Tree-hopper. This bug was quite abundant, and many apple branches were observed to be badly wounded. An interesting feature of the occurrence of the nymphs was their abundance on clover, so that the presence of clover fields must be taken into consideration in devising methods of control.

Plum Curculio (Fig. 31). This insect is not destructive at Macdonald College, though in near-by orchards there was evidence of considerable injury, especially to plums.

Oyster-shell Scale. This scale insect is perhaps the most abundant insect in Quebec orchards, and does a great amount of damage, especially in neglected orchards.

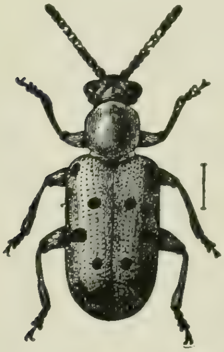

Fig. 33.—Spotted Asparagus Beetle.

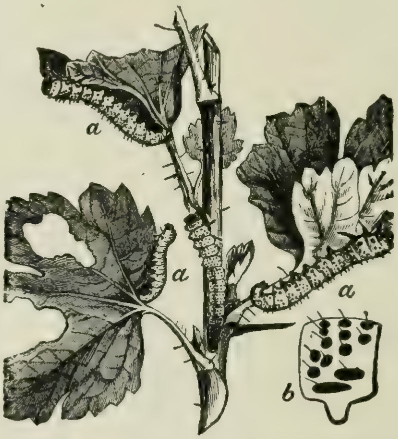

Fig. 34.—Larva of Currant Saw-fly.

Apple Plant Louse. *Aphis mali* was abundant on the young trees, and caused considerable damage.

Clover-root Borer. The roots of old red clover plants in the sod of the plum orchard at Macdonald College were observed to contain many larvæ of the Clover-root Borer.

Clover-leaf Midge (Fig. 32). This insect was quite abundant on leaves of white clover at the College.

Striped Cucumber Beetle. This pest was destructive to squashes.

Asparagus Beetle. The 12 spotted species were abundant, but very few of the *asparagi* were observed.

Turnip Flea-beetle. This insect was abundant but did not appear until the plants had got a good start, so that the damage was inconsiderable.

Raspberry-cane Borer. Considerable wilting of canes occurred in July owing to punctures made by this insect.

Currant Saw-fly (Fig. 34.) Large numbers of the larvæ of this insect were observed on currant bushes during June and July. Pupation began about June 10th, and adults began to appear on the 22nd.

Currant Aphis. This plant louse was quite abundant, and caused considerable damage to the leaves.

NOTES ON SOME FOREST INSECTS OF 1912.

J. M. SWAINE, ASSISTANT ENTOMOLOGIST FOR FOREST INSECTS, OTTAWA.

During the season just closing there have been few serious extensive outbreaks of insects in Canadian forests. The Larch Saw-fly has been less injurious in the east, but is extending its western ranges beyond Manitoba and is still very destructive in Western Ontario. Attempts have been made by Dr. Hewitt to colonize the European parasite *Mesoleius tenthredinis* and the parasitic fungus *Isaria farinosa* at several points in Quebec and Ontario and in the Riding Mountains, Manitoba. With such leaf-feeding insects, widespread over great forest areas, the introduction of such foreign parasites and assistance in the distribution of native and established species seems to offer the only hope for any human influence upon the control.

The Spruce Budworm, which caused so much alarm for several years in Quebec forests, has been on the whole much less in evidence this season. We know of no instance in which its injury was followed by extensive Bark-beetle attack.

The control of such species as the Larch Sawfly, Spruce Budworm, Brown-tail and Gipsy Moth and the European Scourge, the Nun Moth, presents tremendous difficulties. In European countries, where the forests are policed by a large body of trained foresters, control measures may be attempted that are not to be even considered in our immense area. There appears to be but one way in which we can influence the extent of the ravages. This is by increasing the numbers in an infested region, of the active parasites which effectively prey upon the pests. With an introduced pest, natural parasites, if not brought with it, may perhaps be successfully introduced and colonized. It is conceivable that in future years parasites will be obtained in quantity in infested districts to be shipped to distant sections of our forest area for the control of incipient outbreaks of the same injurious species. The present status of the Larch Saw-fly in Canada offers an illustration. So far as the relations between this species and its natural control factors have been studied in Eastern Canada, it appears that *Ceolopisthia nematicida* plays a most important part. We have no record of this parasite from Manitoba, where the Saw-fly is now widespread. There is a very serious outbreak in Western Ontario, towards the Manitoba boundary. Whether the parasite is there or not we do not know; but, apparently, as the outbreak is not under control, its numbers are not yet great. We should be justified in attempting extensive introduction of Cœlopisthia into many sections of Manitoba in an endeavour to check the western spread of the pest, provided, of course, supplies of parasites could be obtained.

This distribution of native parasites has already been tried in England and Europe; and, in connection with other insects, has been attempted in various places in the United States.

We know that this Saw-fly at times sweeps over extensive areas in America, and is not controlled by any parasites or any factors whatever. The outbreak at times ceases only with the death of the trees. We cannot depend, therefore, upon native species for permanent control, unless we can materially influence their distribution.

With such an immense area of forest we shall probably usually have Saw-fly outbreaks just under control, with a plentiful supply of parasitized cocoons in certain parts of the country, while in other parts outbreaks will be in their incipient stages.

It appears, then, to be *possible* that we may yet control such species as the Larch Saw-fly in limited areas of our forests, in touch with civilization, by an elaborate system of information and distribution of parasites.

Investigations in England by Dr. Hewitt, and others, have given hope that *Mesoleius* may be much more effective in its control than any native species. The introduction of this species may be of great benefit.

Lophyrus abietis has been quite destructive to spruce shade trees in various localities. I noticed several white spruces in Algonquin Park, Ontario, this summer, completely defoliated by it.

Chermes similis, Gillette, and *Chermes abietis,* Chol., have both been destructive to shade trees and are very common locally in spruce forests. They may be controlled on shade trees by spraying with kerosene emulsion or whale-oil soap; or, on small trees, by picking and burning the galls.

Chermes pinicorticis, Fitch., is a common and destructive species throughout eastern Canada, and seriously injures many young white pines, particularly those growing in the shade.

Chermes strobilobius, Kalt., and *Coleophora laricella* were particularly abundant this year at Ottawa on both European and American larches.

Gossyparia spuria, Mod., is injurious to elms at Ottawa. The young appeared in late June and early July. The leaves below badly infested branches are sometimes entirely covered with a thick coating of wax. This must render the leaf practically useless and contribute towards the weakening of the tree.

Kaliosysphinga dohrnii, Fisch., is common about Ottawa on native and cultivated alder. It occurs on several exotic species in the Arboretum in immense numbers, and quite spoils the appearance of the trees.

Pemphigus acerifolii, Riley. An aphis, probably of this species, was particularly troublesome this year at Ottawa on ornamental maples. During July winged and wingless adults and young were in dense masses on the undersides of curled leaves. Wax filaments and drops of honey dew, whitened by wax, were constantly dropping from the trees.

Schizoneura americana, Riley, was the cause of many enquiries from southern Quebec and Ontario.

Podosesia syringae. Harris, was found at Ottawa destroying stems of lilac. The caterpillars were boring in the base of the stems, excavating the inner bark and sapwood.

Aegeria exitiosa, Say. A caterpillar, probably of this species, has been numerous for some years in a grove of wild cherry at Isle Perrot, Que. Many of the trees have been destroyed by it. *Phloeotribus liminaris* breeds in these trees; but to a limited extent, and appears not to be increasing in numbers.

Galerucella decora, Say., was reported stripping willow and poplar at various points in British Columbia.

Tylonota bimaculatus, Hald., was taken at Ottawa from ash. The larvae were breeding in apparently sound wood.

Cyllene robiniae, Forst, has been destructive in southern Ontario. Considerable injury was caused to ornamental acacias near Kingston, Ont. It is interesting that while acacias were badly injured, locust trees were apparently not attacked.

Pissodes. Various species of this genus have been injurious to spruce and pine. The most interesting reports were from P.E.I., and from the Rocky Mountain Forest Reserve, Alberta. In the latter place there is a rather serious outbreak of

Pissodes in young growth. The effect of an old *Pissodes* injury to spruce is evident in numerous "double-tops" throughout the Riding Mountain Reserve, Manitoba.

Dendroctonus murrayanae, Hopkins, and other destructive bark-beetles, together with many injurious buprestid and cerambycid borers are very abundant in the Riding Mountain Forest Reserve, Manitoba.

Only a limited amount of cutting is allowed in the reserve, and this is chiefly in fire-swept areas. There were several considerable burns in the spring of 1911, and in these the bark-beetles were present in spruce and pine in immense numbers. There were no fires of importance in the reserve this spring, and consequently little cutting of green timber. There is danger of an outbreak of bark-beetles of the genera *Dendroctonus* and *Polygraphus* in the neighbourhood of these 1911 fire areas. One of these species (*Dendroctonus murrayanae,* Hopk.) has already destroyed some timber there; but it is not noticeably common in healthy trees. A few Dendroctonus-killed jack pines may be seen along the Clear Lake trail. Conditions are being carefully watched by the officers of the reserve and any outbreaks will receive prompt attention.

The Larch Dendroctonus, *D. simplex* Lec., is very common throughout the parts visited. It was found in great numbers in dead, standing larches; but whether or not it had been the primary cause of the death of the trees could not be then determined. This species prefers bark in a dying condition, but may become an important auxiliary of the larch saw-fly in future years. *Ips perturbatus,* Eichh., and *Ips caelatus* Eichh., are very abundant in fire areas south of Clear Lake. They are found there chiefly in white spruce, which was badly injured by fire. *Polygraphus rufipennis* Kirby, the spruce bark-beetle, is common everywhere in dying bark of spruce, larch, and jack pine. These species are able to kill weakened or injured trees which might otherwise recover. Other species of bark-beetles of lesser interest are abundant in dying bark of spruce, pine, and larch.

Timber-beetles of several species are plentiful. *Trypodendron retusus* Lec., the poplar timber-beetle, in poplar, and *T. lineatus,* Ratz., the spruce timber-beetle, in spruce and pine, are the most common. These beetles drive their small round, black tunnels more or less deeply into the wood of dying or recently killed trees and logs, or freshly-cut lumber, and reduce its value for all but cheaper purposes. They also assist in the introduction of fungi and bacteria into the wood. Many poplars on the upper plateau are more or less scraped by deer. These scrapings penetrate to the cambium, and present an ideal inoculation-surface for fungi and bacteria. The poplar timber-beetle enters later on these scraped surfaces, and through its tunnels spores may reach deeper layers.

Damage to killed and injured spruce and pine by cerambycid and buprestid borers is extensive. Piled lumber cut in the fire areas by portable mills showed abundant evidence of their borings. The fires occur usually early in the spring. These beetles lay their eggs in slits or crevices in the bark late in June and in July. They seldom deposit their eggs on barked surfaces. The grubs cut large, rounded and flattened tunnels through the bark and wood.

To prevent the injury by these borers it is necessary to bark the trees, or put them in water when possible, before the young grubs have worked through the bark and into the wood, or to saw before they are deeper than the thickness of the slab. Some species will continue their borings in piled lumber, or even in parts of buildings, for months or even years, if they have penetrated deeply before the logs were sawed.

Every effort should be made to get on the ground as soon as possible and to rush the sawing during the first part of the season. Much of the trouble might thus be left in the slab.

Throughout the reserve the poplar is badly infested with fungi, and with boring grubs of the long-horned beetles (*Cerambycidae*). The only conceivable method of controlling either the fungi or the beetles is to cut and burn, at the proper season, all infested trees. Such an operation could not be considered there at the present time, and these diseases of the poplar are likely to continue.

Dendroctonus pseudotsugae Hopk., has been injurious in many places in British Columbia to Douglas Fir; and *Dendroctonus brevicomis* Lec., has attacked and killed healthy yellow pine (*P. ponderosa*) in several localities. *D. ponderosae* Hopk., has been reported destroying *Pinus ponderosa*, Bull or Yellow Pine, over a limited area. In the presence of these, and other bark-beetles of similar habits, British Columbia possesses a very serious danger to her forests. They should be carefully watched and outbreaks promptly and skilfully dealt with.

Dendroctonus valens, Leconte, usually a not very serious secondary enemy of pines and spruce in Eastern Canada, was found this season destroying healthy white spruce. This species is extremely abundant in the pine slash in Algonquin Park. It has entered living bark in large numbers, as evidenced by the pitch-tubes. *Ips calligraphus*, and many species of the genera Ips, Dryocoetes, Trypodendron, Gnathotrichus, Polygraphus, Hylurgops, Pityophthorus, Pityogenes, and others, are present there in myriads in pine and spruce slash of last winter's cuttings. As long as extensive cutting continues there is probably little danger from any species discovered there this summer. When the cutting ceases, as it soon must, the second growth pine and spruce will be in danger.

There was noticed this season in different parts of Quebec Province, in Ontario, and particularly in New Brunswick, a rather obscure injury to spruce and fir twigs. The tips of the twigs appear throughout the early summer, dead, brown and dried. On many twigs there are indications of hemipterous injury, but many show no mark of insect work and contain apparently no parasitic fungi. Much of the work seen this season was difficult to explain. Twigs of spruce, fir and pine are commonly injured by various insects. Certain ipid beetles of the genus *Pityophthorus* are locally plentiful boring in and destroying twigs of white and red pine. Certain hemipterons kill many twigs of pine, spruce, and fur by sucking the sap, early in the season, an inch, or several inches from the tip. Cerambycid and ipid beetles do always more or less damage, and at times a great deal, by gnawing the bark from twigs and branches of pines. Such injury is seldom of importance, except on ornamental trees. Pine twigs, or ornamental trees, bored by *Pityophthorus* should be cut off and burned as soon as noticed.

The Birch Leaf Skeletonizer, *Bucculatrix canadensisella*, Chamb., has been abundant and injurious, notably about Port Arthur, Ont.

The Pine Leaf-miner, *Paralechia pinifoliella*, Clem. This interesting miner was abundant at Ottawa this season on cultivated jack pine, *Pinus banksiana*. The larva works within the distal half or more of the leaf, sealing up the entrance-hole at the base of the cavity with a silken film and pupating within. Adults were emerging this year during the last week in June.

An interesting outbreak of *Monohammus scutellatus* occurred this summer on pine about Port Arthur, Ont. Immense numbers of the adults were feeding upon the bark of twigs and branches of sound trees.

There was an interesting outbreak this season in some of the St. Lawrence Island parks of *Elaphidion villosum*. Thousands of branches of oaks were broken, some hanging to the trees, and others scattered about the ground. These branches were gathered and burned. This will probably prevent a recurrence next year.

Saperda calcarata is a very destructive enemy of poplar in the east and also in Manitoba. Throughout parts of the east it is particularly difficult to preserve poplar shade trees on account of its ravages. It infects the trunk and larger branches, and I have taken it from the heart of the largest balsam poplars. Very careful inspection and removal of the borers in the fall may prevent injury to valuable shade trees, and the older grubs can be removed with a knife or killed by benzine or carbon bisulphide injected into their borings.

Agrilus anxius. This injurious species is very destructive to imported white birches about Ottawa. Native birches appear always better able to resist its attack.

MR. CAESAR: Have you ever discovered on pine branches swellings from half an inch to an inch and a half in diameter due to a species of *Peridermium* probably *P. cerebrum?* In parts of Lambton County pine trees are being injured by this disease.

MR. SWAINE: Yes, in the West, on jack pine and mountain pine and, in the east, on jack pine, such *Peridermium* galls are very common.

DR. WALKER: Have you seen anything of *Retinia* on pine this year?

MR. SWAINE: Yes. It has been rather common in the West, particularly in the Rocky Mountain reserve, Alberta. Its work is usually found more or less commonly throughout our eastern forests, but I have no record of special outbreaks there this season.

DR. WALKER: Mr. J. H. White of the Dept. of Forestry, University of Toronto, sent me a number of twigs of jack pine infested with a species of Retinia, from Sudbury, Ont., where he said they were very abundant.

DR. HEWITT: I was very glad that Mr. Swaine emphasized the question and discussed the importance in the control of the Larch Sawfly, of transporting the parasitic enemies from one locality where they are extremely abundant, to another locality where the attack of the sawfly is not so severe. This has been done in the case of a number of other insects which we know. About five years ago I recommended and also started in England a system such as Mr. Swaine suggests, of aiding the natural control of the Larch Sawfly, and I believe the Board of Agriculture in England have continued it. The method I recommended is this: I made a careful study of the percentage of parasites and the increase. If an increase in parasitism was observed sufficient, as I believed, to be of material assistance in obtaining control, cocoons were to be collected and transferred to localities where an outbreak of the sawfly was in the incipient stage. This seems to be the only possible alternative to the introduction of parasites from outside and is one which could very well be adopted. What must be done in these cases, however, is to keep a very close watch, as Mr. Swaine suggests, on the outbreak from time to time when it begins and notice from year to year how the parasites increase in abundance. This is the method I adopted in England. From year to year the percentage of parasites increased, and as it increased it showed that the control of the natural parasites was very efficient. I hope that we shall be able to carry on some experiments in this country on these lines.

AQUATIC INSECTS.

ROBERT MATHESON, TRURO, N.S.

Water is the most abundant mineral of our earth. It covers at least ¾ of its surface, and also constitutes a large part of our continents, Fuller estimating that the entire amount of underground water would form a belt 96 ft. in thickness. W. J. McGee estimates that the first 100 ft. of ground of the United States contains 17 ft. of water. Water is the most essential of all compounds. All living organisms consist of a large percentage of water. Undoubtedly life originated in the water, and to-day all forms of life are more intimately associated with water than with almost any other single substance. It is not necessary for me to enumerate the many peculiarities of water, its color, odor, freezing and melting temperatures, its specific and latent heat, its point of maximum density, the formation of vapor, rain, fogs, dew, frost, etc., its solvent powers, etc., etc. Yet all these chemical and physical properties of water are what makes life possible on our globe. Is it any wonder then that our seas, lakes, rivers, ponds, and streams teem with living organisms?

Turning our attention to the insects, there is no question that they constitute the dominant animal group. Insects are more numerous in species, constituting 4-5 of the known forms, but also probably exceeding in actual bulk all other terrestrial animals. From such considerations one would be inclined to conclude that insects would be found in great abundance in our waters, yet the very opposite in the case. Our great oceans and seas are practically devoid of all insect life, only one genus of water striders, *Halobates,* being found distant from our shores. In our inland waters, insects are found near the shores, in shallow water, among aquatic vegetation, only a few forms being found in the Plankton (*Corethra*). The open water is practically devoid of all insect life. Aquatic insects are practically all littoral.

The explanation of this paucity of forms is found in the fact that all insects were originally terrestrial animals. The evidences of this are so numerous and obvious that I need scarcely recount them;—

(1) The chitinous armour, impermeable to water and air.

(2) The taking in of air through open spiracles.

(3) No insect form breathes air dissolved in water throughout its life.

(4) Many aquatic larvae breathe air directly.

(5) Larvae possessing gills are widely distributed and not restricted to any one group or closely associated groups.

(6) No adult insects are true aquatics, breathing air dissolved in the water.

Undoubtedly like many mammals, insects have become readapted to an aquatic life. This readaption has probably been brought about either by the scarcity of food on land or its abundance in water, or by both, and as a result of the terrible competition existing among land forms. Gradually certain forms have pushed their way out into the water and this adaptation to an aquatic environment has arisen independently in widely divergent groups. At the present time scarcely a single large order is without aquatic representatives. In many of these orders the aquatic habit has risen independently several times. Miall estimates that adaptation to aquatic situations has risen independently at least one hundred times. To the student of evolution no other single class offers such a tempting field for the study of adaptation to a common environment by many widely divergent forms.

As we glance over the Hexapods we find comparatively few adapted to aquatic life, not one single order which is wholly aquatic throughout the larval and imago states. The Ephemerida, Odonata, Plecoptera, Trichoptera are all aquatic in the larval state, the adults being aerial. Part of the Neuroptera, some rare Lepidopterous forms (Hydrocampa, Paraponyx), are aquatic in the larval state, and several large families of Hemiptera and Coleoptera are aquatic throughout their entire existence. Yet the species comprising these families are nearly all terrestrial in their mode of obtaining their air supply. Some rare hymenopterous forms are also aquatic, parasites on the eggs of various insects which depost their eggs in water. As yet but few of these parasites have been reared, though undoubtedly many exist. It is an inviting field for anyone interested in discovering new things.

Despite the comparatively few species of insects, probably not more than 15,000, which are aquatic in their habits, we find here some of the most remarkable adaptations. In the May-fly group alone we find the various genera adapted to the most diverse aquatic environments. We find them in the swiftest streams and waterfalls (Heptagenia, Epeorus, Iron, etc.), in more or less stagnant ponds (Blasturus, Siphlurus), in the quieter streams and riffles (Callibaetis, Leptophlebia), and burrowing in the mud and ooze at sides or bottoms of ponds (Hexagenia, Caenis, Tricorythus, Ephemerella). Some of the May-fly species are admirably adapted to one particular environment as those of Iron while others are capable of living under a greater diversity of conditions (Leptophlebia, Ephemerella). In nearly all the aquatic groups we find more or less of a parallel development, each species well adapted to the situation in which it lives.

I shall not attempt a detailed discussion of the various modifications which were necessitated by the change from a terrestrial to an aquatic environment. Probably the most difficult situation which the aquatic forms had to meet was the securing of air supply. And to solve this difficulty we find insects have developed a great variety of structures. And these structures have certainly developed independently in widely divergent groups. There are practically two methods by which any form can secure its air supply. (1) By coming to the surface and breathing air directly, (2) By means of either tracheal gills or blood gills and thus making use of the air dissolved in the water.

I shall discuss the first method hurriedly. Those forms that secure their air supply directly at the surface are found in widely separated orders. Many of these species have developed very complicated and beautifully adapted structures. In the Hemiptera many forms have developed pile on the surface of the body enabling them to carry down an air supply (Notonectidae). Very little is known concerning the methods by which members of the family Belostomidae secure their air supply. In Belostoma there are areas of pile on the under surface of the body by means of which an air supply is carried. The antennae are wonderfully modified, somewhat analogous to that found in the Hydrophilidae but it is not known whether they are used in securing an air supply. In Nepidae the caudal stylets have been modified into a tube which is pushed through the surface film and thus an air supply is obtained. The aquatic members of the Coleoptera also take down an air supply. In the Haliplidae I found quite a new adaptation for securing air (Jour. N.Y. Ent. Soc. xx, pp. 180-181, 1912). Everyone is familiar with the method by which members of the Dytiscidae secure their air supply. In the Hydrophilidae the terminal club of the antennae which is pilose acts as the agent by which air is transferred to the pile covering the under surface of the body. It is extremely interesting to watch a hydrophilid beetle come to the surface, break the surface film by means of its antennae and bending it back so as to touch the prothorax there is formed an opening bordered by the angle between the head and pronotum and the antennae outside. Down this opening the transfer of air takes place. How it is done I do not know. So far I have discussed only the adult Coleoptera. All larvae of Dytiscidae obtain their air supply by coming to the surface, the terminal segment of the body usually being provided with a large pair of spiracles. This is also the case with most Hydrophilidae, though a few undoubtedly obtain their air supply by means of tracheal gills (Berosus). In the Haliplidae I have described the method of securing an air supply by the larvae of Peltodytes. This method is probably one of the most remarkable yet described for Coleoptera. In the Donaciinae the larvae live on the submerged roots and stems of aquatic plants, spatterdock, etc., and obtain their air supply by puncturing the stem by means of two powerful anal spines. At the base of these spines are the spiracles which are thus placed in contact with the air in the inter-cellular spaces of the plant. This is certainly one of the most remarkable adaptations for the obtaining of an air supply.

In the Diptera there are many aquatic larvae which obtain their air supply directly at the surface of the water. This is found in the aquatic Crane-flies, the soldier flies, Culicidae and others. In the Syrphidae we find the rat-tailed maggot which is provided with a long anal process. This is projected through the surface film while the possessor revels in the filth below.

There are three ways by which aquatic larvae may obtain their air supply from that dissolved in the water.

(1) Extremely thin-skinned forms which live among algae or rushing water where oxygen is abundant. Here we have Ceratopogon (Punkies) in algae, some very small non-case building caddis worms and a few stone flies (Chloroperla) which live in rapids.

(2) Blood gills. This, the true mode of respiration among aquatic organisms, is rare in the insect group. We find it practically confined to a few dipterous forms as Chironomus, Simulium, and an amphibious Cranefly, etc.

(3) Tracheal gills. This method of securing an air supply is widely distributed and is but a modification of the ordinary tracheal respiration. Tracheal gills are only extensions of the body wall into which run tracheae and their attendant tracheoles. These are found under several different forms:—

(1) Filamentous as in the Caddis-worms, Stone-flies, some Lepidoptera (Paraponyx), and is probably the most primitive.

(2) Lamelliform as in many Mayfly nymphs, and Damsel-flies.

(3) Modification of the posterior end of the alimentary canal, Dragonflies.

I shall not attempt to discuss at any length many of the other modifications necessary for aquatic life. As the aquatic Coleoptera have become better fitted for rapid locomotion than any other forms it may be well to glance at their adaptive modifications. Prof. Osborn in the American Nat. for Oct., 1903, has described and adaptive modifications of aquatic mammals. Prof. Needham and Miss Williamson in the same magazine for Aug., 1907, have shown that many of these modifications find their parallel in the Dytiscidae. I may mention some of them: (1) Rigidity of the body which has been brought about by compacting and co-adaptation of the external parts of the skelton. This co-adaptation has been well described by David Sharp in the Transactions of the Royal Dublin Society for 1882. (2) Diminished resistance by,—

(a) Rounding of the contours giving a boat-shaped form.

(b) Depression of the eyes.

(c) Loss of hair and sculpture.

(d) Flattening of hind legs in horizontal plane.

(3) Increased efficiency of swimming of the hind legs. (4) Lowering the centre of specific gravity by the formation of an air cavity under the Elytra.

I cannot leave this discussion, however short, of the adaptation of aquatic insects without again calling attention to this inviting field of research. Very little has as yet been done, none of the groups have been monographed and but few life-histories have been studied in detail.

Turning our attention now to the economic significance of this insect life of the water. These aquatic forms may be grouped into two general classes, herbivors and carnivors. Now the primary crop of our waters, ponds, lakes, streams, is fish. In order to utilise our ponds, streams, and lakes to their fullest extent it is necessary that they produce a crop which will be of value to man. How is this to be bought about? Can we not utilise this insect fauna to our own advantage? In other words why should we not have a system of water culture. Before we can have any such system it is first necessary to know our water fauna and flora. I mean know in the sense of life-histories, habits, food, times and rate of reproduction, means of propagating, isolating, etc., all those things that a progressive farmer must know before he can successfully raise crops. It is becoming more and more essential with our increasing cost of production and consequent high cost of living that we utilise our open lakes, ponds and streams so that they may produce a valuable crop as fishes. As Professor Needham has so often pointed out, water is one of man's primary pleasure grounds and sources of food supply. At present it provides but a poor and uncertain crop which certainly could be doubled and trebled if we only could develop as successful a water culture as we have a land culture.

In order to have a successful water culture we must have (1) Isolation and growth in pure culture, in other words we must eliminate or lighten the struggle for existence.

(2) Provide suitable environment.

(3) Control the food supply and enemies.

(4) Provide suitable varieties.

So far as insects are concerned in a successful water culture they are important as a food supply, and in many cases dangerous as predaceous on small fry as well as on insect herbivors. Prof. S. A. Forbes has shown in his studies on fish food that insects constitute an important supply. He found Mayflies, Midges, (adults and larvae), Caddis-worms, Water-boatmen, etc., in their stomachs. When we consider the enormous egg production of such mayflies as Callibaetis we see at once an important source of food supply particularly when we are able to control the rearing of these forms. Then there are periodic forms as Blasturus, Siphlurus, Ephemera, Choroterpes, giving us an enormous food supply. So also amongst Dragonflies. Then what an enormous food supply when we are able to control the rearing of the many forms of aquatic Diptera, Trichoptera, etc. Though many of the more general features of the life-histories have been worked out, very little has been done in the way of successful rearing of these forms as the basis of a permanent food supply for fishes. Along with the rearing of the forms suitable for fish food it will always be necessary to keep out of our ponds the predaceous forms such as the larger species of Dytiscidae and Hydrophilidae. In my limited observations on these forms I found them to attack small fish and kill them very easily. So it will also be necessary to carefully study the predaceous forms in order to lessen the dangers of fish culture.

The basic food of our fresh waters is vegetable, largely plant plankton. This forms the basis for the animal plancton which in turn provides the food supply for the younger fishes. Our herbivorous insects in turn provide a considerable food for larger fishes while these in turn are devoured by larger fishes. If we see to it that the final product is a profitable crop of edible varieties of fish we will at least have laid the foundation of a successful water culture.

All of us are compelled to earn a living, and the economic problems at present awaiting solution provide us with means for a livelihood. These problems are mainly concerned with the growing of land crops. Surely the future will also find us hard at work developing a successful water culture. In the meantime anything which we can do by adding one life-history of an aquatic form or isolated notes may be of use in the future, and will be of permanent value.

Dr. Walker: I am very glad indeed that this subject has been brought up again. I think that most of us who heard Prof. Needham's address at the Annual Meeting two years ago realize, for the first time, the great possibilities offered by our large tracts of swamp water in the artificial cultivation of aquatic insect larvae as food for fish. Our fresh water fisheries are becoming rapidly exhausted, and it is high time that more active steps were being taken to prevent any further depletion of these important natural resources. It is only by such careful investigations of the food of fish and the means by which it may be cultivated that a sound basis for such work can be obtained.

Dr. Hewitt: I should like to thank Dr. Matheson for his interesting address and also to state that there is really no necessity for him to apologize, as he seemed to be doing, for bringing forward a paper which is of the utmost economic importance. Dr. Matheson said that there is a great necessity for our study of aquatic insects. It seems to me that the proper place for studies of that kind is at the universities. Students who are looking for subjects for research work are the ones to take up this kind of study, as we cannot at present afford to devote our time to problems primarily involving a large amount of investigation along lines not of an immediate economic nature. I regard that owing to the fact that there are so few of us at present working on the economic aspects of entomology we are in consequence so extremely busy with our own branches of work. Therefore, I would suggest to Dr. Walker and others in charge of research at our universities and colleges that those students might devote their time, that is, those with inclinations in these directions, to studies of this kind; the students in universities and colleges are those in the best position at the present time to carry on these investigations. We heard with great interest Dr. Needham's address two years ago on this important subject. Dr. Matheson has again called attention to the important relations of a study of aquatic insects to the question of the conservation of our fresh-water fish supplies. I would suggest that we take some definite action in this matter and that we move a resolution calling the attention of such a body as the Commission of Conservation, who have to deal with the conservation of our fresh water fishes, etc., to the necessity of investigations of this kind, namely, the study of the food of our fresh-water fishes in relation to their conservation. This matter has a very important bearing on the question of our national food supply. I think if a resolution of this nature were passed and forwarded to the Commission of Conservation it would do much good and would be preferable to our retaining our opinions on this vital matter to ourselves. I beg to propose, therefore, the following resolution:

"That in view of the decrease in the supply of the fresh-water fishes of Canada the attention of the Commission of Conservation be called to the important fact, which is being overlooked in the endeavours to replenish depleted waters by restocking and to stock new waters, that as the chief food of many of our important fresh-water fishes consists of larval and adult insects a study should be made of the available or possible food supplies in the way of insect life before attempts are made at replenishing or stocking waters; otherwise, by stocking waters in which the food supply is not suitable or cannot be made suitable, large sums of money and considerable time and energy will be uselessly expended owing to fish being planted where the food is either insufficient or of the wrong character, as the conservation of our fresh-water fishes cannot be successfully carried out until more knowledge is available as to their feeding habits and requirements, and concerning the insect and other fauna and available food supplies of the waters in which they are living or which it is desirable to stock with fish, and that a copy of this resolution be forwarded to the Secretary of the Commission of Conservation.

MR. SWAINE: I am glad to second such a motion.

The resolution was put to the meeting and carried unanimously.

INSECT PESTS OF SOUTHERN MANITOBA DURING 1912.

NORMAN CRIDDLE, TREESBANK, MAN.

In this paper an attempt is made to give a brief account of the more prominent insects found attacking both vegetation and live stock in the vicinity of Aweme, Manitoba, during the season of 1912. Broadly speaking, there are a number of insects, of which we know comparatively little, doing considerable injury to crops that require careful study, not only in Manitoba, but in Saskatchewan and Alberta also. In all these provinces the enormous acreage under cereals has placed almost unlimited food at the disposal of insects that formerly existed only in a few native grasses, and which were controlled very largely by the condition and prevalence of the plants they inhabited. Under the new conditions there is no telling how far afield some of these species may spread, or how much damage they may accomplish.

During 1912 several insects were present in damaging numbers, of which the following were most noticeable.

1. INSECTS INJURIOUS TO GRAIN AND GRASSES.

Hessian Fly. This species was present in small numbers in late June, when a few larvæ were discovered near the base of wheat plants. On July 13 a few pupæ were secured, of which, unfortunately, all but one died. This single individual produced a fly on September 6th, thus adding more evidence to the probability of the species having a very similar life cycle to that which it has in the east, instead of being, as was formerly supposed, single brooded. Much more evidence is required, however, before this point can be settled definitely. Incidentally it may be mentioned that, according to the Alberta Department of Agriculture, quite extensive injury was done to winter wheat in that Province this season, and as no knowledge of its life history is available in those parts, and consequently as no precaution are taken in sowing wheat to escape this fly, it would not be surprising if a very severe outbreak occurred there at any time.

In Manitoba, at least half a dozen points reported Hessian Fly damage, but doubtless some of this, at least, are referable to other insects.

Greater Wheat-stem Maggot. This insect was present at usual in fair numbers but occurred more plentifully in native grasses than in growing grains. Adults of this species can be collected as a rule, from May to the middle of September.

Small Wheat-stem Maggot. A species that I expect to be *Oscinis soror,* but have not been able to get identified,* was present in considerable numbers early in the season, and did extensive injury to spring wheat, often giving whole fields a patchy appearance, and in spots killing out fully half the plants—killing them so completely, too, that viewed from a distance the patchyness of fields gave the impression of the grain having failed to germinate. And as a matter of fact, a few farmers thought this was the cause. Later, in June and July, another generation occurred and I found them to be quite plentiful both in the larval and pupal stages at or near the bases of wheat plants. Many of the side shoots (stools) thought to be killed by the combination of heat and drought were in reality destroyed by the maggots of that fly. Pupæ collected on July 13 produced adults from July 19 to the 27th. So there would be another brood before winter set in—probably in volunteer wheat and such native grasses as were within reasonable distance.

WESTERN WHEAT-STEM SAWFLY (*Cephus occidentalis*). This sawfly was again very troublesome and appears to have been quite widely spread over the Province. Wheat and rye suffered in equal proportions and in some instances round the edges of fields there was a loss of fully 75 per cent., the injury extending into the grain for several hundred feet, though gradually getting less severe towards the centre of fields.

Deep ploughing, not less than six inches, if done in the fall, appears to be enough to prevent the flies emerging next June. It is also effective in the spring if packed afterwards, loose shallow spring ploughing is, however, quite valueless.

GRASSHOPPERS. We had another rather severe outbreak of these insects, June and early July being particularly favorable in weather conditions for their depredations. They were also present in damaging numbers in other districts. They were, however, in most instances kept within reasonable bounds by means of horse droppings, salt and paris green and the only real injury here was done after they could fly when scattered through the crop they attacked the heads of all kinds of grain They also did some injury by gnawing through binder twine used to tie sheaves. Cool wet weather in July and August had, however, a marked effect upon them. To begin with those adverse conditions prevented the usual migratory movements by means of which they are distributed over the

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*Through the kindness of Mr. J. W. Johnson this species has been determined as *Oscinis carbonaria.* C. G. H.

country before they commence to breed. Consequently very few left the neighborhood in which they were hatched. Secondly, these conditions assisted the disease—*Empusa grilli*—that had already become thoroughly established the previous year. Many were killed for this cause. Others were attacked by parasites, and yet others from general weakness due to lack of sunshine, dampness and cold; so that by the time egg laying commenced fully half the total number had vanished from the causes mentioned. Many of the remainder being weak and climatic conditions being still adverse, failed either to deposit any eggs at all or only laid a small number in comparison to what a vigorous grasshopper usually does.

In spite of all these unfavorable conditions, however, a large number of egg masses have been deposited of which less than ten per cent. have been destroyed by insect enemies, so that unless these are still further reduced before next May, or the weather is still adverse when the nymphs should appear, we may expect another outbreak next year, though less severe than during 1912.

The commoner species present were *Melanoplus atlanis, packardi, angustipennis, bivittatus femur-rubrum dawsonii*, and a few others. *M. spretis* has not been observed for several years past and is not indigenous to these parts.

2. Insects Attacking Roots and Vegetables.

Root crops were on the whole remarkably free from insect depredations. The Colorada Potato beetles, however, are still increasing and have made potato growing considerably more expensive than formerly. The beetles still seem wonderfully free from enemies. This species has also caused considerable annoyance in gardens by eating flowering species of *Nicotiana*.

Another potato pest of which many complaints were received was the small black Blister-beetle *Macrobasis unicolor* var *murina;* under natural conditions it lives upon wild peas, vetch and loco weed, but at times of abundance attacks both potato and beans. It has in the past been compared with *Epicauta pennsylvanica*, which is a larger insect.

Turnip Beetles (*Entomoscelis adonidis*) were also rather more plentiful than usual and apart from their attacks upon turnips made a specialty of Virginian stock.

Pepper Grass Beetle (*Galerucа externa*) appeared again in enormous numbers, but as it confined itself chiefly to *Lepidium* and a species or two of Arabis, it could hardly be objected to.

Another beetle as yet only useful which appeared in abundance in certain restricted localities was *Disonycha triangularis* which at present has only been found breeding in and eating lambsquarters. Whether it would also attack spinach if that plant were placed within its reach remains to be seen.

All root-maggots were hardly to be found during the year; cut worms, too, were less plentiful than usual; while the small cabbage butterfly after causing almost a complete loss of untreated cabbage, etc., a couple of years ago, has now become quite a rarity. Strange too, the species it was thought to be replacing, *P. protodice,* is now quite common again.

3. Insects Attacking Trees and Live Stock.

Several well known insects were observed doing injury to trees, foremost among them being the Larch Sawfly; which, as during the previous year, defoliated most of the larches, though it did not last as long as usual, and the trees sooner regained their greenness by means of a second growth. I believe, too, that enemies were working among them, as a few specimens were found dead in positions that looked very like the work of a fungus. The sawflies were, however, very widely spread and were collected many miles away from their food plant.

Another pest which made much progress and did considerable mischief to spruce was the Spruce Sawfly (*Lophyrus abietis*). Some trees were entirely stripped of their foliage and being evergreens the appearance and effect is much more lasting than larch sawfly work. The insect itself is also quite different in habit, excepting during the larval stage. The larvæ appear in June from over wintering eggs and though varying in size are nearly all fully developed by the middle of July. They then spin cocoons on the leaves or beneath the branches—not beneath dead leaves or moss on the ground as does the larch sawfly. From these the flies emerge in August, lay their eggs and die before winter sets in.

POPLAR LEAF BEETLE (*Lina tremulae*). Has again become a pest of considerable magnitude—very few aspen poplars were free from them and many small ones practically defoliated. During July and August nearly every grove of poplars was tainted by the disagreeable odour given off by the larvæ.

WILLOW LEAF BEETLE (*Galerucella decora*) again appeared suddenly over a restricted area covering not more than a hundred acres of wood land. They had evidently alighted after one of their usual spring excursions—but disappeared again after a few days, so that little injury was accomplished.

Of other woodland pests the larger Poplar borer, *Saperda calcarata,* was perhaps most conspicuous. It seems to confine itself to certain groves which it eventually kills. The most practical remedy is seemingly to cut down and burn all infested trees.

Among the enemies of live stock may be mentioned an unprecedented outbreak of Stable-flies *Stomoxys calcitrans,* which caused great annoyance to both horses and cattle. It was also troublesome to dogs, particularly to their ears, which were rendered quite raw by the succession of flies that attacked them. Curiously enough, the enormous increase in *Stomoxys* has been accompanied—no doubt coincidentally—by an almost total disappearance of horse flies which reached their greatest abundance in 1910 when they were present in millions. This season even single individuals were hardly procurable.

The usual mosquito pests, house flies, and those of lesser importance were present, but departed very little from the normal in numbers.

SOME NEW OR UNRECORDED ONTARIO INSECT PESTS.

L. CAESAR, B.A., B.S.A., GUELPH.

Rhagoletis fausta. *O.S.* On June 22nd of this year I visited a cherry orchard near St. Catharines to see whether any adults of the Cherry Fruit Fly had yet appeared. At this date a few, but only a few early varieties of sour cherries and some sweet cherries were ripening. Montmorencies were still quite green. About 100 specimens of *R. cingulata* were observed. There was no indication of egg laying yet. On my way home I called at another orchard about two miles away in a different direction from the town. While examining some pear trees which formed a row along the east of an old cherry orchard I was surprised to see many flies that even to the naked eye appeared different from cingulata and resembled much more closely *R. pomonella,* the Apple Maggot. I felt sure, however, that the latter would not yet have emerged. On closer examination I saw that these flies had no whitish crossbands on their abdomens, and that the dark crossbands on the wings were not arranged in the same manner as those of either cingulata or pomonella. Accordingly I had several sent to Prof. Aldrich who stated that they were Rhagoletis fausta—the species which he had described on Page 70, Vol. XLI of the *Canadian Entomologist* as *intrudens* but later discovered to be identical with *fausta,* the name that Osten Sacken had given it in 1877. Before I had any reply from Prof. Aldrich I received a letter from Mr. Illingworth of Cornell University who said that one of our students who happened to be with me the day I found this species had called on him and shown him specimens of the insects which he had taken with him to Cornell. In his letter Mr. Illingworth kindly gave me the name of the insect and some information on the degree of prevalence in his state.

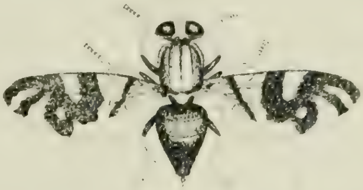
Fig. 35.—Black-bodied Cherry Fruit Fly (*Rhagoletis fausta*), much enlarged. This fly is a little larger than the following species.

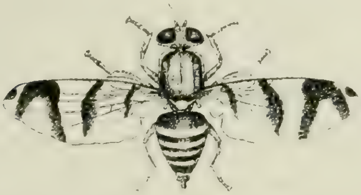
Fig. 36.—Cherry Fruit Fly (*Rhagoletis cingulata*), much enlarged. This fly is a little smaller than the House Fly.

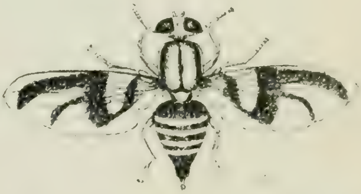
Fig. 37.—Adult of the Apple Maggot or Railroad Worm (*Rhagoletis pomonella*), much enlarged. This species is about the same size as the one pictured in Fig. 35.

During the weeks that followed I examined as many cherry orchards as I could to see how widespread the species was and how it compared in numbers and destructiveness with cingulata. At St. Catharines cherry orchards infested with this species were practically free from cingulata and *vice versa.* It seemed to be nearly as widespread in that district as cingulata and was probably just about as destructive. At Grimsby both species were found in the same orchard and apparently in about the same proportions. In many other orchards there were cherries containing maggots of fruit flies, but as I did not see the adults I could not tell which species they belonged to. Mr. Illingworth states that fausta is quite destructive to Montmorency cherries in New York State. Osten Sacken got the specimen he named from New Hampshire, and Aldrich says in his letter that he has had several reports of it in the Eastern States. The specimen he described in 1909 in Can. Ent. was from British Columbia, and I notice that Mr. A. Gibson has added a note to Aldrich's article stating that this and not *cingulata* is probably the species that caused considerable damage to cherries in British Columbia. The chances are, therefore, that it is a well established pest that has been with us for years, but overlooked.

The most striking differences between it and cingulata are that it is considerably larger—this was the first thing that caused it to attract my attention—the abdomen is black, lacking the white crossbands, and the dark crossbands on the wings are very differently arranged. That it was found on the pear foliage was apparently due to the pears being the outside row and the insects having a better chance here to enjoy the sunlight than among the crowded cherry trees. About two weeks later most of them were visible on the cherry leaves and fruit, and very few on the pear. On June 22nd, the date of their discovery egg laying had apparently not begun.

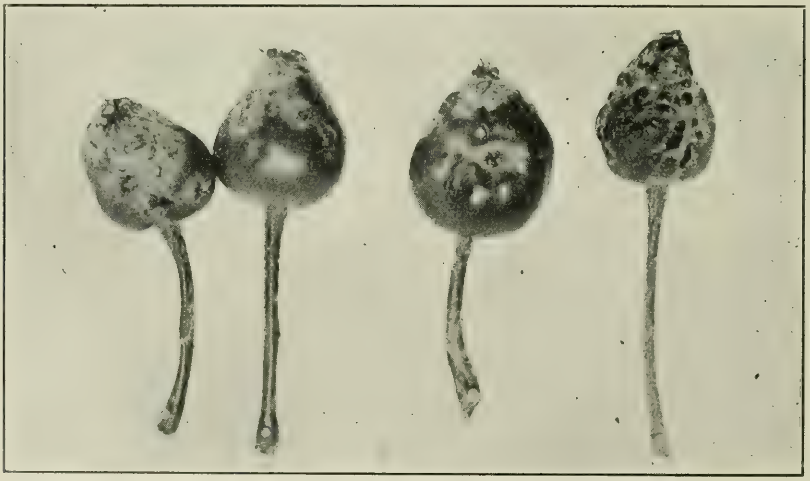

Fig. 38.—Work of Plant Bugs (Capsids) on young apples.

CAPSIDS ATTACKING APPLES.

Four years ago my attention was called by Mr. Joseph Tweedle to the large number of more or less deformed fruit in his apple orchard, situated about twelve or fourteen miles south-east of Hamilton. On examining the apples I suspected that insects of some kind might be the cause; accordingly the next spring (1910) I visited the orchard a week or so after the blossoms had fallen and succeeded in discovering several Capsid nymphs feeding on the fruit and producing depressions or scars wherever they had fed. About a dozen were collected and taken to Guelph, but in my absence the adults reared from them were not looked after, and moulded in the breeding cages. The nymphs were greenish in color, with brownish or reddish brown wing pads, and most of them, at least, had conspicuous, hairy antennae. No red nymphs were seen anywhere. In the spring of 1911, I again visited the orchard and found the same type of nymphs present. One or two red nymphs were found on this occasion, but they were very rare indeed. From the former nymphs brought to Guelph, six adults representing two species were reared. Three of these were sent to Mr. Van Duzee who kindly identified them as *Paracalacoris colon*, Say and *Neurocolpus nubilus* Say. Four out of the six belonged to the latter.

This spring I thought that even though neither Mr. Baker or I had time to devote to a careful study of the life history of these insects, it might be possible by occasional trips to make some interesting and perhaps valuable observations on their habits and work. Accordingly on June 12th, when the calyces of the apples had just closed, Mr. Baker and I visited the orchard and found a good many of the nymphs feeding as in previous years on the fruit and tender part of the twigs. To our surprise many red nymphs were also seen, especially on the shoots that grew up from the crown of the trees. None of these red nymphs, however, were seen on or close to the fruit; but that this species (*Lygidea mendax*) as well as *Heterocordylus malinus* does feed on young fruit in addition to the leaves, has been shown by Crosby.

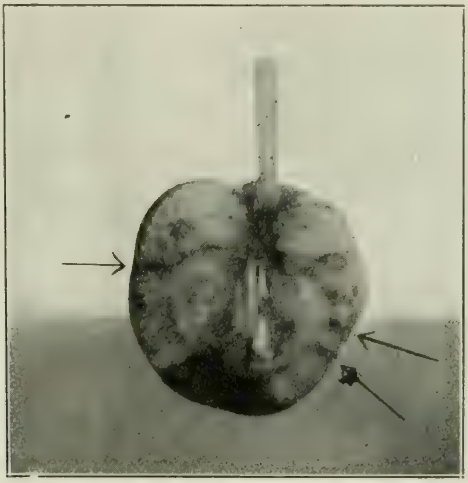

Fig. 39.—Section of deformed apple, showing small brown areas caused by feeding of young Plant Bugs (natural size). Photo taken June 25th.

On June 25th, we again made a hurried trip to the orchard. The fruit at this time averaged about half an inch in diameter and the nymphs had almost entirely ceased to feed on it, though two or three were doing so. They evidently now much preferred the tips of the shoots around the base of the tree. The red nymphs here were about as numerous as the other species, but owing to their brilliant color were more easily seen. Forty or more nymphs were taken to Guelph, and twenty-two adults reared from them. All the red nymphs—four in number—proved to be *Lygidea mendax*, the False Red Bug, and the rest *Neurocolpus nubilus* and *Paracalacoris colon*, six belonging to the former and twelve to the latter; many of the red nymphs had died, being apparently less able to stand confinement on the way to Guelph.

On this second trip we had tagged a dozen apples that had been attacked, and as I was anxious to see what these looked like, and to discover what the adults were doing, I visited the orchard on July 20th, about a month after our second trip. The apples were now from one to one and one-half inches in diameter. The tagged ones, as shown in the photograph, were badly deformed. One had dropped.

My search for adults resulted in capturing two specimens of *Paracalacoris colon,* five specimens of *Lygidea mendax* and eighteen specimens of *Neurocolpus nubilus.* The first species was taken on the shoots around the base of the tree, no more of the species were seen; the second was chiefly taken in the same place, but one was on some weeds in the orchard. One or two were seen up in the tree but could not be caught. Of the eighteen specimens of *Neurocolpus nubilus* two or three were taken on the apple shoots along with the other two species, but the rest were captured on the following weeds along the orchard fence: catnip, mullein, teasel, cone-flower, red-raspberry (both leaves and fruit) and ground cherry. A search on these and other weeds fifty or more feet away from the orchard resulted in finding none of the three species though *Lygus pratensis* and two or three other Capsids were very numerous.

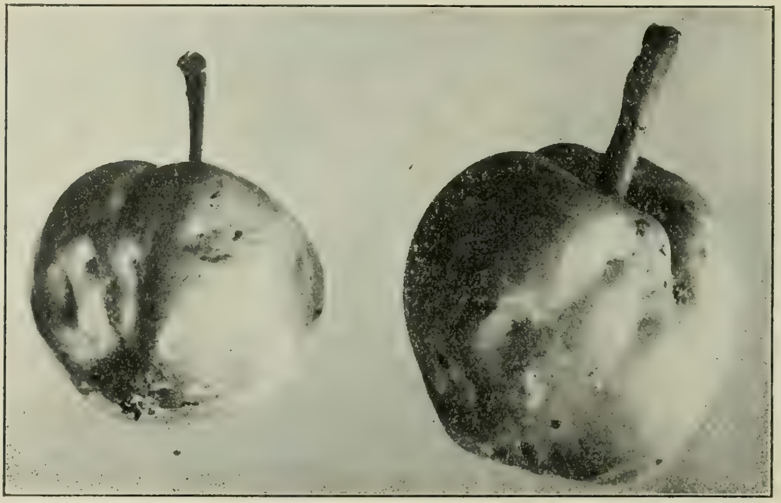

Fig. 40.—Spy apples nearly half grown, showing deformities caused by feeding of young plant bugs when the apples were very small. Photo taken July 20th.

Examination of the shoots growing up from the base of the apple trees showed that from two to six inches or so of the tip of almost every shoot had been severely injured by the feeding of the Capsids. These shoots were to be found around many trunks and in every case they had been badly injured. The injury at a distance could easily be mistaken for Blight (*Bacillus amylovorus*), but was quite different when viewed near at hand. Some of the tips of the stem were colored orange red, but whether this was due to the Capsids I could not decide, especially as I had only two hours in all to spend in the orchard.

The total amount of injury to the fruit this year would probably not exceed five per cent., and not every apple that had been punctured was sufficiently deformed to consider it a cull though very few could be classed as No. 1.

I regret that descriptions of nymphs were not made with sufficient care to be reliable, and that we have not yet had a chance to make a study of the life history of each species. So far as I can see, however, from the fact that the attacking nymphs are very small when the apples are just forming and that both *nubilus* and *colon* seem to keep pace with *mendax* in development, the life history of the former two will probably closely correspond to that of *Lygidea mendax* and *Heterocordylus malinus* as given by Crosby.

It may perhaps be of interest to note that Mr. Van Duzee states that he usually finds *Neurocolpus nubilus* on Sumach and *Paracalacoris colon* on Bladder-Nut. I examined carefully sumachs about half a mile from the orchard, but could find no Capsids on any part of them. There were no Bladder-Nut bushes near.

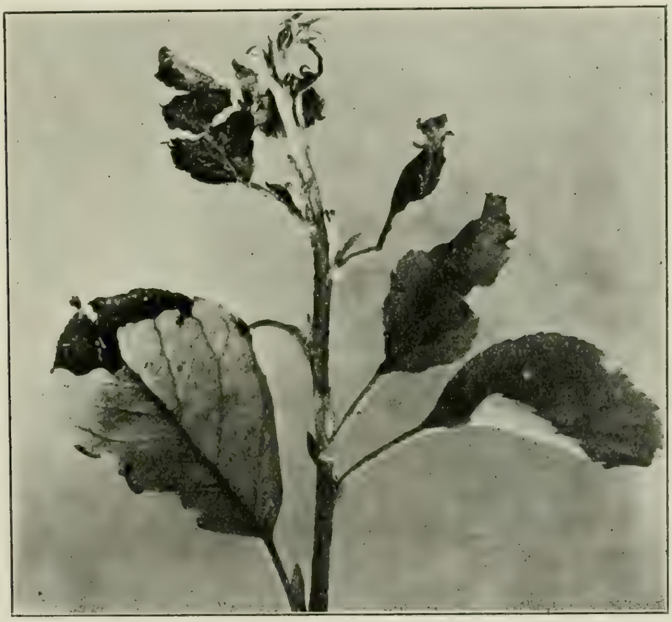

Fig. 41.—Tips of tender shoots killed by young plant bugs.

I have taken specimens of *Heterocordylus malinus* on a couple of occasions in the vicinity of Guelph, but have not yet been able to prove that they cause any damage to apples in Ontario. Professor Parrot has found that another Capsid, *Lygus invitus,* does considerable damage to pears. I have not yet happened to observe any injury from it in this Province, though probably it is doing some.

Almost every place I go, and especially at Institute meetings deformed apples and pears are brought in by farmers who are anxious to know the cause. From the nature of these deformities I feel that a large field for investigation is still open to entomologists, though of course a good many deformities come under the province of the plant pathologist equally as much as under that of the entomologist.

NOTES ON INJURIOUS INSECTS IN BRITISH COLUMBIA IN 1912.

R. C. Treherne, Division of Entomology, Ottawa.

The following notes and observations were made during the past season. Except for a visit to the States of Oregon and Washington, returning by way of the Lower Kootenay district and the upper region of the Okanagan, I spent the entire summer at Halgie, in the Fraser Valley, where the Dominion Entomological Field Station was located. Particular attention was paid to the insects of the smaller fruits, and the chief insect studied was the Strawberry Root Weevil (*Otiorhynchus ovatus*) the most serious insect pest of this district.

Apple Insects and Others.

The Bud Moth (*Tmetocera ocellana*) was particularly abundant in the orchards of the Lower Fraser Valley this summer and undoubtedly affected the crop to a marked extent.

The Tent Caterpillar (*Malacosoma erosa*) was also especially abundant, complete defoliation of apple trees resulting in some cases. This insect is an annually occurring pest in the Fraser Valley, and yearly causes considerable annoyance to fruit-growers. Through the agency of the Agassiz Experimental Farm I received a number of inquiries on this insect and its remedial measures. While on my trip to the States to the south, I made special inquiries on the varieties of Tent Caterpillars common to the Pacific Coast States, and was informed that together with a species that corresponds directly to the Eastern Orchard pest, which is to be found throughout the West, there are at least three species native to the Pacific Coast States, viz., *Malacosoma erosa, M. pluvialis, M. constricta.* The first two feed upon almost everything in the orchard but the pear, which under normal conditions seems immune. *Constricta* devastates the Oak, sometimes attacking the Prune. *Erosa*, so far as I could gather, in a general way, is confined to the territory west of the Cascade Range of mountains, whereas *pluvialis* is to be commonly found in the interior.

The Kootenay District this year was visited by a species of climbing cutworm, which caused the growers considerable worry (from my reference) in the Nelson District. Passing through this District early in September, my attention was drawn by Mr. Morrice Middleton the Assistant Provincial Horticulturalist for that District, to the destruction of a number of young newly-set apple trees by the effects of the Paris green in the poisoned bran mixture, which mixture he had recommended to control the cutworms. The growers had made the mixture of the usual strength, but had thrown it up around the butts of the trees, which, from the action of the arsenic, by the middle of summer became completely girdled. I saw an orchard of som e 200 odd trees in which fully 45 had suffered in this way, and the owner was complaining that no reference was to be found in any of his books of reference on the possible effects of Paris green.

Several inquiries came to hand on the subject of beetles which attack the buds and blossoms of the young apple trees. The insects proved in most cases to be the adults of Elater beetles, and several species are involved. Mr. Venables, of Vernon, reports Corymbites inflatus as destructive in the Okanagan District. In the Lower Fraser Valley, I noticed elater beetles devouring the blossoms, including the calyx cups, the pistils and stamens, and also observed occasions where buds were taken off, presumably also due to these beetles. Young developing leaves were also fed upon and maturing apples also suffered by the beetles eating portions of the epidermis and pulp. I took some of these beetles with me to the Oregon Agricultural College and identified one beetle with the collection in the Entomological Division as *Ludius suckleyi*. Another species I had in hand I could not be sure of but it resembled closely *Limonius discoideus*, a species which in Oregon affects the buds and the blossoms in the same way.

A report came to me through Mr. W. H. Brittain, Provincial Entomologist and Plant Pathologist, at Vernon, mentioning species of weevils which affect apple buds in the Okanagan. I understand that in Washington State, as well as in Oregon, bud weevils are important factors to be guarded against.

A letter with an enclosure of some apple twigs was forwarded to me from the Agassiz Experimental Farm as coming from Yahk, B.C., a place almost on the border line of British Columbia and Washington State, in the Valley of the Columbia River. The insect contained was dead, but that as it was lepidopterous it might be referable to the injury by the larvæ of the Bud Moth, which at times takes on a boring habit in the petioles of leaves and young twigs of apples.

My attention has been drawn on one or more occasions to the malformations of apples in the Lower Fraser Valley. The fruit on the tree would be nearly full grown, but a certain number would have remained small, deformed, and very "lumpy." There would often be a cluster of apples showing this appearance, as if they had not developed for lack of proper nourishment. I was at a loss to know the reason for this in so far as no insect could be found, neither did the "lumps" show any appearance of insect sting or feeding punctures. While in Oregon, Mr. H. F. Wilson, Assistant Entomologist at the Corvallis Station, drew my attention to apples in the college orchard there showing what appeared to me to be the similar injuries as those on the apples in the Lower Fraser Valley. He was making a special study of the insects which caused these malformations and said it was due to the Rosy Apple Aphis, (*Aphis sorbi*), an insect which is the most serious apple aphis pest in Oregon—The Woolly and the Green Aphis being present.

Aphis sorbi passes the winter and spring on the tree, migrating to some unknown host plant during the summer, returning in due course to the apple tree in the fall.

In the Fraser Valley the Woolly Aphis (*Eriosoma lanigera*) is to be found in nearly every orchard, but its presence has not attracted very marked attention on the part of the growers. The Oyster Shell Scale is a serious pest when left alone and not sprayed. It seems more abundant on the Coast region than in the interior. The combined action of this scale and the Tent Caterpillar has succeeded in killing a large number of the wild crab apple trees on the Coast, a fact that is not deplored.

In the very early spring a small black weevil, *Magdalis aenescens*, may commonly be seen in the orchards of the Lower Fraser Valley. But its attacks are restricted to dead bark tissues, particularly in association with the fungous known locally as the Black Spot Canker.

Syneta albida is a small whitish beetle commonly occurring in the spring on apple trees in the Fraser Valley. It is reported as devouring portions of the exterior of the fruit of young developing apples and maturing cherries.

The *San José Scale,* so far as is known, is not found in British Columbia. An occasional outbreak in the past has been reported, but to-day the country is believed to be free from this pest. It is common in the State of Washington and is gradually extending up the Okanagan Valley in the State of Washington. It can only be a question of time that this pest will be found to occur in the orchards of British Columbia, particularly in the Okanagan. We cannot hope for immunity from this pest for all time, consequently from now on the growers in the lower portion of the British Columbia Okanagan Valley will have to keep a sharp lookout for its appearance, and when and where it does appear to subject it to immediate remedial measures.

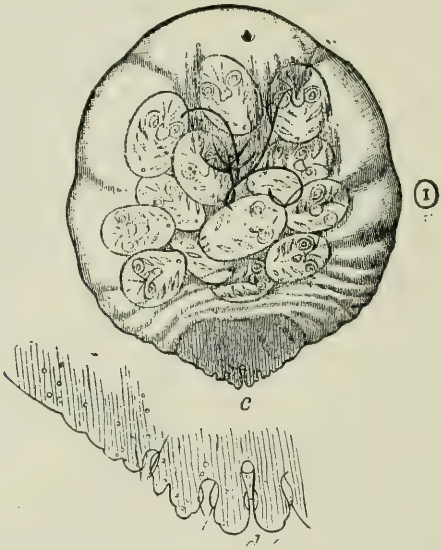

Fig. 42.—San José Scale. Female scale with young.

The Codling Moth is an insect of the same nature which also is gradually extending up the Valley of the Okanagan. It is closer to the British Columbia line than the San José Scale, but as yet it is not reported in the British Columbia territory of that district. Mr. W. H. Brittain, however, found an isolated centre of infestation at Armstrong, a point north of the Okanagan Lake, this summer. Mr. Thos. Cunningham, the Provincial Inspector of Fruit Pests, promptly dealt with it by collecting all the apples in the locality and boiling them in a large vat. This action is to be highly commended as it delays as much as possible the day of general infestation in the Province.

There seems little doubt, however, that the day is not very far distant when the Codling Moth, like the San José Scale, will be present in the British Columbia orchards, and it may reasonably be first expected in the Okanagan, for as soon as the young orchards in the Okanagan Valley south of the British Columbia border line come into bearing, their infestation is merely a question of time, and this in due course leads to the bearing orchard land in the southern portion of the British Columbia Okanagan District. The Okanagan Valley lying east of the Cascade Range is the channel along which the prevailing winds travel and the birds migrate.

In my brief stay in the Okanagan I found the orchard mites *Bryobia* and *Tetranychus* of economic importance. They are present also in the Lower Fraser Valley, but the dry climate of the interior seems to be more favaroble to the growth and reproduction.

The PEAR TREE BLISTER MITE was found to occur in every orchard in the Fraser Valley similarly so with the Pear Tree Slug. The latter is two brooded. The first brood this year did not appear in such numbers as to cause any material loss. The second brood appeared to be more plentiful in point of numbers, but it occurred late enough not to injure the trees, merely assisting nature to ripen the wood. *Myzus cerasi* and the Green Apple Aphis also occurred in the Fraser Valley but I saw no instance on mature trees where their presence was causing material harm. In this country where the seasons are long and the growth luxuriant, insects of this nature tend to check the excessive growth, and unless present in too great numbers act almost as a beneficent agency.

An insect which for the time being is called the LESSER APPLE WORM can generally be found at apple picking time occurring lightly in most orchards in the Fraser Valley. It appears to affect the Crab, Spy, Gravenstein, and King apples in particular. I have not bred this insect to the adult yet, so cannot be sure it is the same insect as occurs in a similar way in the Eastern orchards. I am hoping to bring some of these insects through the winter and work on their life history next summer.

SMALL FRUIT INSECTS.

In the Lower Fraser Valley, which is pre-eminently a small fruit and truck gardening district, the one serious pest in proportion to the injury is the Strawberry Root Weevil, *Otiorhynchus ovatus*. The larvae girdle the roots of the plants, causing death either by malnutrition or by exposing the plants to the drying action of sun and wind, for the deeper roots are taken off as a rule previous to the surface roots, consequently the whole root surface is forced nearer the ground surface. As a rule plantations do not suffer until the spring of the second year from planting, although I was informed locally that occasions have arisen whereby the infestation was so severe that plantations had to be plowed up previous to taking the first crop and sometimes just after the first crop was picked. Such cases are, I would fancy, the exception and not the rule, and some peculiar local dependent conditions must have been present. I have paid particular attention to the biology of this weevil this summer and am preparing a much longer and detailed report on its habits, but the general points in its life history are somewhat as follows. My notes only extend over this season, so due allowance must be made until duplicate notes are obtained next year or succeeding years.

The egg-laying period in the field began about June 15th and extended till August 22nd. The egg stage per individual laster 22-24 days. The larvae began to hatch about July 15th and continued to hatch until September 14th. The great majority of the larvae pass the winter in the half-grown larval state and emerge as the adult in the middle of June and continue emerging until the first part of July. The pupal stage like the egg stage lasts about three weeks. There is only two weeks in the year when the ground may be presumably free from the presence of larvae and that is the early part of July. I have no records of date of a second brood. The list of its food plants is a very long one, and while it has shown itself particularly fond of strawberry roots, I believe its primary food is the roots of grasses. I have taken the larvae of the weevil feeding indiscriminately upon roots of weeds and strawberries intermingling in the strawberry row.

The most satisfactory remedy that can be devised to date, when the acreage is available, is fall plowing and rotation of crops. But the unfortunate part of it is that the farms are so small, 5-10 acres, for the most part where this insect occurs that even if rotation is individually practised it practically amounts to growing strawberries year by year on the same piece of ground. The best remedy for preventing infestation that can be suggested at present on these small farms, where the weevils have become concentrated, is to stop the production of strawberries for a year or two, cultivating the ground frequently, allowing chickens free range in the infested patch, and then when reasonably sure that the ground is clean to evolve a system entailing a barricade against the weevil which from the structure of its wing covers cannot fly and is doomed to walk the earth. A wooden boarding with an overlap of tin on the under surface of which is placed some sticky material such as "Tree Tanglefoot" might be employed to advantage on a small farm. The framework could be made permanent and by the annual application of some sticky material for two months in the summer it might be made the means of keeping a great majority of the weevils out. One grower, near Portland, Oregon, was practising some such scheme as this, using tar or some mixture with tar on his tin, but I do not think it proved entirely successful. The principle is still an experiment both as regards efficiency and cost of maintenance.

The cheapest and most efficient mixture experimented with this summer to be used on the barricade was a mixture of resin gum and boiled oil in a proportion of 3 to 1. This mixture must be applied direct to the tin surface and not to the wood, for the wood absorbs the oil and the plan quickly becomes worthless. Commercial Tanglefoot will give good results, provided every care is given the question of preventing rain splashing up on to its surface. Rain-splashed it soon becomes worthless, but protected, and even on a wood surface, its holds its efficiency, most of the summer, on a single application. Its price might prove prohibitory to the general grower.

Unless some such plan like this is devised it seems little use growing strawberries two years in succession on a small acre farm, for the profit to the acre is liable to be so reduced that it is hardly worth while growing the plants. I should assume that not much more than one acre in ten should be planted to strawberries in a weevil infested district, perhaps then a system of rotation could be arranged with the neighboring farmers if they were all interested in the same way.

Another insect reported to me by correspondence from Grand Prairie, B.C., is the Currant Fruit Miner (*Epochra canadensis*), which is present throughout the Western states and British Columbia, and where Currants and Gooseberries are being grown is a decided pest, the worst of its kind for the fruits it attacks.

THE CURRENT BORER (*Aegeria tipuliformis*) is another pest which would assume large proportions if the crop was more planted. It is commonly to be found in the Lower Fraser Valley.

TRUCK CROPS.

Fully 75 per cent. of the enquiries at the Agassiz Experimental Farm have been in connection with the Cabbage Maggot. I have invariably replied giving the Carbolic Acid Emulsion as a remedy and the Tarred Discs. On two occasions reports were returned that the Carbolic solution had given good results when applied early. The truck gardeners around Vancouver suffer severely from this class of insect.

I have also received a report, with specimens enclosed, of the larvae of some elater beetle—wireworms—from Mission, which were working on the tubers of potatoes in the ground. The potatoes on being dug were found to have these "worms" inside.

In connection with Potato insects I would like to draw attention to the approach of the Colorado Potato Beetle (*Leptinotarsa decemlineata*) to the boundaries of British Columbia. Some ten years ago this beetle became imported and localized near a place called Nez Percé, in Idaho. It has now extended its territory into Washington, so much so that the south-east corner of the state is generally affected. An isolated report was received by Professor Melander, of Pullman, by correspondence this summer describing an insect which left little doubt of its nature on the presence of this beetle at a place called Metaline Falls, a point some ten odd miles south of the British Columbia border line, in the Columbia River Valley, opening into the Lower Kootenay country. If this report is correct we may expect to receive reports of its presence in British Columbia in the near future, at any rate it is in the same class as the Codling Moth and the San Jose Scale and may be expected in the course of years under natural conditions.

Except for another outbreak of the Californian Tortoiseshell butterfly (*Vanessa californica*), in the Kootenay country, confining its depredations to the bush and cultivated places, this about completes the record of my British Columbia notes on insects occurring during the past six months. I hope in a few days to make out my report on these same insects as mentioned much more fully and explanatory.

ARSENITE OF ZINC AS A SUBSTITUTE FOR ARSENATE OF LEAD.

L. CAESAR, B.A., B.S.A., GUELPH.

Arsenite of Zinc is a very fine whitish, fluffy powder, much lighter than Paris Green. It contains approximately forty per cent. of arsenious acid, which is about three times as much as Arsenate of Lead contains. It costs twenty cents a pound f.o.b. and is manufactured by the California Chemical Spray Co., Watsonville, California. For some years this company has been testing the value of Arsenite of Zinc, and claims that the results have been highly satisfactory. Prof. Melander, of Pullman, Washington, in limited tests states that it gave excellent results against Codling Moth†. Prof. Cooley, of Montana Agricultural Experiment Station, says that in his experiments it controlled Potato Beetles as well as Paris Green did, and that it is a very stable compound, no arsenical injury taking place to the crown or bark of trees, even when wounds were made and bandages kept moist with the mixture were applied. Arsenate of Lead and all other arsenicals tested caused more or less injury when thus used.*

Statements like these led me to make some tests at Guelph this year, and to urge other parties in various parts of the province to co-operate so that a comparison of results might give some valuable information.

The first test was for Codling Moth. Alternate trees in two old orchards were sprayed with Arsenite of Zinc and Arsenate of Lead. A little over 1 lb. of the the former to 10 gallons of dilute lime-sulphur (1.008 sp. gr.) was used and 3 lbs. of the latter to the same amount and strength of lime-sulphur. In my absence my colleague, Mr. A. W. Baker, did the spraying and took the necessary pains to see that it was thorough. Examinations of the trees at various times throughout the season showed that while both mixtures gave excellent results the trees sprayed with Arsenite of Zinc were a little cleaner than the others, only very rarely an apple being wormy. Unsprayed trees had much wormy fruit.

Mr. Beckett, an extensive grower of apples at Hamilton, and Mr. J. E. Smith, of Simcoe, co-operated in tests against the Codling Moth with Arsenite of Zinc. The former used 100 lbs. of the poison and reported that in his opinion it was quite as satisfactory as Arsenate of Lead; the latter said that he was also pleased with the results, but did not think his tests sufficiently extensive to draw reliable conclusions.

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†Bulletin No. 103, Agr. Expt. Sta. Pullman, Washington.

*Journal of Econ. Ent., Vol. 5, No. 2.

My second test was against Potato Beetles. Mr. G. J. Spencer conducted this for me. On one plot he used 1 lb. Arsenite of Zinc to 40 gallons Bordeaux mixture, and on another 3 lbs. Arsenate of Lead to the same amount of Bordeaux. Both poisons destroyed all the beetles, so that perfectly satisfactory results were obtained.

In no case, whether combined with the lime-sulphur or with Bordeaux, did we see any evidence of burning; moreover, the fungicidal value of the lime-sulphur did not seem to have been lessened, because even the Snow apples that were sprayed were almost entirely free from Scab, quite as free as those sprayed with Arsenate of Lead and lime-sulphur. As the potatoes were early varieties and ripened before there was any injury from Blight we cannot speak of the effect from this disease, so destructive this year to late potatoes.

The result of this year's experiments would therefore go to show that Arsenite of Zinc may prove to be a very excellent and safe insecticide and may even supersede Arsenate of Lead, especially as, apart from its poisoning merits, it has several advantages over the latter:—

(1) It can be easily stored, being a powder, whereas Arsenate of Lead is a paste and should not be allowed to freeze or dry out.

(2) It takes less time to prepare for the tank, all that is necessary being to mix up the desired amount in a pail with a little water and then pour it into the tank, whereas Arsenate of Lead, being a paste, takes a good deal of stirring in water to bring it into suspension.

(3) It can be manufactured more cheaply than Arsenate of Lead; one pound costing 20 cents, but each pound contains as much arsenious acid as about three pounds of Arsenate of Lead, and therefore is equivalent in killing power to that amount. As Arsenate of Lead costs at least 10 cents a pound, an equal strength of Arsenite of Zinc would cost only two-thirds this amount.

(4) When used alone in water we found that it remained in suspension considerably longer than Arsenate of Lead, this being due probably to the greater fineness of the particles of which it is composed. When added to lime-sulphur this advantage was lost as it settled somewhat rapidly, thus indicating that constant agitations would be necessary. In sticking qualities it is apparently slightly inferior to Arsenate of Lead.

Whether any chemical action takes place when it is added to lime-sulphur is difficult to determine for certain, as in tests made by the chemists very little if any change could be detected.

Although this season's work has given me a very favorable opinion of Arsenite of Zinc, I should not care to recommend anyone to use it except experimentally for a year or two yet until we see how it will act under different conditions of moisture and temperature. In conversation with some men from the United States I was told that they had heard that the results there this year were not satisfactory. Whether this be correct or not, it is probable that the insecticide has been tested in many states and reports should soon begin to come in. These reports ought to give us information as to the real value of Arsenite of Zinc. Should it prove to be very satisfactory, there is little doubt that it would soon be manufactured in many parts of the United States and Canada, so that it could be procured without the present high cost for freight or express.

THE ENTOMOLOGICAL RECORD, 1912.

ARTHUR GIBSON, CHIEF ASSISTANT ENTOMOLOGIST, DIVISION OF ENTOMOLOGY, OTTAWA.

In general throughout Canada the climatic conditions of 1912 were not favourable for the collection of insects. In eastern Ontario and throughout Quebec the weather during the summer months was disappointing, being cool with much rain. In the Ottawa district practically the only warm, clear weather in the whole season was in the first two weeks of July. At Chelsea, Que., in the Gatineau hills, near Ottawa, where I had a cottage for the season, the evenings with few exceptions were decidedly cool, and unless well clad it was almost impossible to sit out on the verandah with any degree of comfort. Night after night I "sugared" nearby trees for noctuids, but seldom saw more than two or three specimens on a tree during a whole evening. Similar statements indicating, on the whole, a "poor collecting season" were received from collectors in various parts of the Dominion.

During the year several important expeditions were made to various parts of Canada by well known naturalists, and many specimens of insects were collected for study by specialists in the United States. Prof. R. C. Osburn, of Columbia University, New York, spent a part of the summer in collecting in British Columbia, particularly at Kaslo, Glacier and in the Yoho Valley, near Field. Messrs. Riley and Hollister, of the United States National Museum, collected at many points in western Canada; Mr. H. T. Cleaves, of the Public Museum of the Staten Island Association of Arts and Sciences, New Brighton, N.Y., visited Nova Scotia, collecting chiefly in the vicinity of South Deerfield and Lake George, also on Seal Island; Mr. D. H. Nelles, of the Dominion Alaska Boundary Survey, brought back several small collections, mostly made near Rampart House, Y.T. Mr. Nelles informs me that Mr. J. M. Jessop, while engaged in geological work for the U.S. Government, along the 141st Meridian, between the Porcupine River and the Arctic Ocean, made large collections of lepidoptera and coleoptera.

We have again to gratefully acknowledge the invaluable help received from recognized authorities in the United States and elsewhere. Particular acknowledgement is due to Dr. L. O. Howard and his expert associates, Dr. Dyar, Dr. Banks, Messrs. Schwarz, Busck, Crawford, Viereck, Rohwer, and Knab; Sir George Hampson of the British Museum; Mr. W. D. Kearfott, of Montclair, N.J.; Prof. H. F. Wickham, of Iowa City, Iowa; Mr. E. P. Van Duzee, of Buffalo, N.Y.; Mr. W. Beutenmuller and Mr. J. A. Grossbeck, of New York, N.Y.; Dr. Henry Skinner, of Philadelphia, Pa.; Dr. E. M. Walker, of Toronto, Ont.; Col. Thos. L. Casey, of Washington, D.C.; C. W. Johnston, Boston, Mass.; Mr. Chas. Liebeck, of Philadelphia, Pa.; Mr. J. D. Evans, of Trenton, Ont.; Mr. F. H. Wolley-Dod, of Millarville, Alta.; Prof. Cockerell, of Boulder, Col.; Prof. J. S. Hine, of Columbus, Ohio; and Dr. W. G. Dietz, of Hazleton, Pa.

LITERATURE.

Among the many valuable publications which have been received during 1912, and which are of interest to Canadian students, mention may be made of the following:—

BARNES, W., and MCDUNNOUGH, J. H. Contributions to the Natural History of the Lepidoptera of North America: Decatur, Ill. (to be obtained from Dr. William Barnes). Vol. I., No. 1—Revision of the Cossidae. 35 pp., 7 plates, price

$1.50; Vol. I., No. 2—The Lasiocampid genera Gloveria and its Allies, 17 pp., 4 plates, price $1.00; Vol. I., No. 3—Revision of the Megathymidae, 43 pp., 6 plates, price $1.25; Vol. I., No. 4—Illustrations of Rare and Typical Lepidoptera, 57 pp., 27 plates, price $3.50; Vol. I., No. 5—Fifty New Species: Notes on the Genus Alpheias, 44 pp., 5 plates, price $1.50; Vol. 1, No. 6—On the Generic Types of North American Diurnal Lepidoptera, 13 pp., price 50c. These important contributions are very welcome and we sincerely hope they are but a beginning to many which the authors will prepare. The illustrations are excellent.

Casey, Thos. L. Memoirs on the Coleoptera, III.; New Era Printing Co., Lancaster, Pa., issued March 20, 1912. This memoir of 386 pages consists of three parts: I.—Descriptive Catalogue of the American Byrrhidæ; II.—A Revision of the American Genera of the Tenebrionid Tribe Asidini, and III.—Studies in the Longicornia of North America. In the first paper 58 Byrrhids are described as new; of these, 15 are from Canada. In the revision of the Asidini, 133 are described as new species and 30 as new subspecies. None of these are from Canada. In Part III. the descriptions of 172 new species and 40 new subspecies are given; of these, five species and one subspecies are from Canada.

Cockerell, T. D. A. Names Applied to Bees of the Genus Osmia, found in North America: Proc. U. S. N. M., Vol. 42, pp. 215-225; separates published April 13, 1912. In this list 167 names are given, 60 of which are represented by specimens in the collections of the U. S. N. M.; of these 60, 22 are types or paratypes. In each case the type, locality, and collector of the type is given, if known. Many brief descriptive notes are also given. This paper will be a useful one.

Cockerell, T. D. A. Names Applied to the Eucerine Bees of North America: Proc. U. S. N. M., Vol. 43, pp. 261-273; separates published Oct. 19, 1912. The previous catalogue of the North American Eucerines appeared in the Transactions of the American Entomological Society, Vol. 32, 1906. Since, numerous species have been added and a few changes in nomenclature made. The present list gives the type localities, and names of collectors of the types when known. There are also references to the principal synoptic tables. Students of the Hymenoptera will welcome this new catalogue.

Comstock, J. H. The Spider Book—A Manual for the Study of the Spiders and Their Near Relatives, The Scorpions, Pseudoscorpions, Whipscorpions, Harvestmen, and Other Members of the Class Arachnida, found in America North of Mexico, with Analytical Keys for their Classification and Popular Accounts of their Habits: New York; Doubleday, Page and Co., 1912, pp. xv. + 707, 771 figs.; price $4.00. This companion book to The Butterfly Book, The Moth Book, The Insect Book, and the other extremely useful nature books published by the above firm will be eagerly welcomed by entomologists. The systematic descriptions of the genera and species, and particularly the keys for their identification are specially valuable. The illustrations throughout the book are excellent. Now that such a reliable volume is obtainable we hope to see a much wider interest taken, in Canada, in these interesting creatures. To the author we extend our best congratulations on the completion, in such a beautiful form of his years of work on spiders.

Cosens, A. A Contribution to the Morphology and Biology of Insect Galls: Reprinted from the Transactions of the Canadian Institute, Vol. IX., 1912; University Press, Toronto; pp. 297-387, plates I.-XIII. The results of the studies communicated in this contribution are most valuable. Much original matter is presented. Students of insect galls will welcome this important addition to the literature.

JOHANNSEN, O. A. The Mycetophilidæ of North America: Maine Agri. Exp. Station, Bull. No. 196 (Dec. 1911, first copies mailed March 8, 1912), Part III.—The Mycetophilinæ, pp. 249-328, plates 5; Bull. No. 200 (June 1912, first copies mailed July 2, 1912), Part IV.—(conclusion), pp. 57-146, plates 7. In this latter part the species of the genera of the Mycetophilinæ not characterized in Part III. are described, as well as the species of the sub-family Sciarinæ. In these parts eight new species are described from Canada. These bulletins on the Fungus Gnats of North America are important contributions.

HAMPSON, SIR GEORGE F. (Bart.). Catalogue of the Lepidoptera Phalænæ in the British Museum, Vol. XI., Noctuidae, 1912, 689 pp., plates CLXXIV-CXCI., received 17th May, 1912. The subject of this volume is the classification of the subfamilies Euteliana, Stictopterinæ, Sarrothripinæ and Acontianæ; 941 species are included belonging to 150 genera. "The four subfamilies are modifications of the great quadrifid section of the noctuidae and are almost confined to the tropical and warmer temperate regions, few genera and species extending to the colder zones and none to the Arctic and Alpine zones." Records of thirty-one species from North America are given in the volume, eight of which are from Canada.

HOOKER, CHARLES W. The Ichneumon Flies of America belonging to the Tribe Ophionini; Trans. Amer. Ent. Soc. XXXVIII Nos. 1 and 2, pp. 1-176, plates I-III, received 22 June, 1912. In the opening chapters, External Anatomy, Variation, Abnormalities, Geological History, Life History and Habits, Economic Importance Disease and Natural Enemies are briefly discussed. In the study of the tribe, the author has examined all but four of the types existing in America, so far as known. Seven of the North American species are stated to occur in Canada. This monographic treatment of the Ophionini is an important contribution, and one which will be of particular value to economic entomologists.

KRÖBER, O. Die Therviden Nordamerikas: Stettiner Entomologische Zeitung, 73, Jahrgang, Heft II; received Dec. 23, 1912. In this paper, pages 209-272, the author confines himself to a thorough discussion of the species before him. Nine genera are included, full descriptions being given of 36 species; nine of the latter are described as new, one of which is from Canada.

MALLOCH, J. R. The Insects of the Dipterous Family Phoridæ in the United States National Musemum; Proc. U. S. N. M., Vol. 43, pp. 411-529, with plates 35-41, published Dec. 14, 1912. In this paper many species are described as new, eleven of which are from Canada. Little is known about the larval habits of these insects. This contribution is an important one and we hope it will lead to studies in the life-histories of the species. The plates show structural characters.

O'KANE, W. C. Injurious Insects: How to Recognize and Control them, illustrated with 600 original photographs. New York: The MacMillan Company; published November, 1912, 414 pages, price $2.00. This new reference book on insect pests will be found of value to farmers, fruit-growers, market gardeners, in fact, anyone interested in any branch of agriculture. It is profusely illustrated.

PERRIN, JOSEPH AND RUSSELL, JOHN. Catalogue of Butterflies and Moths collected in the neighborhood of Halifax and Digby, N. S.: Transactions of the Nova Scotian Institute of Science, Vol. XII, part 3, pp. 258-290; Halifax, author's separates published 8 Feby., 1912. This is a very useful list. 530 species and varieties are included, 60 of butterflies and 470 moths. Few records of species in the families following the geometridae in Dyar's Catalogue are included, and when further systematic collecting is done, particularly in the microlepidoptera, the list will be materially added to.

SANDERSON, E. DWIGHT, AND JACKSON, C. F., Elementary Entomology, 372 pages, 496 figs.: Ginn & Co., Boston, New York, Chicago, London; price $2.00. This new elementary text book, which although, as the authors state, is largely a compilation from the works of others, will undoubtedly receive the welcome it deserves. It is divided into three parts, viz.; Part I—The Structure and Growth of Insects, Part II—The Classes of Insects, Parts III—Laboratory Exercises. The senior author is responsible for Parts I and II, and the junior author for Part III.

SANDERSON, E. DWIGHT. Insect Pests of Farm, Orchard and Garden, 684 pages, 513 illustrations: New York, John Wiley & Sons, also the Renouf Publishing Co., Montreal, price $3.00. In this useful book, the author discusses the more important insect pests of the farm, orchard and garden. The work will be of special value to those working in economic entomology, and of course to the practical farmer, fruit-grower, or gardener. Any one interested in insect life, however, will find the volume a valuable source of reference.

WALKER, E. M. The North American Dragonflies of the Genus Aeshna: University of Toronto Studies, Biological Series No. 11. The University Library: Published by the Librarian, 1912, (received May 2, 1912). This monographic treatment, of 213 pages, of the North American Dragonflies of the above genus, is an extremely important contribution. The genus is considered in its narrowest sense, the species separated from it by Williamson under the names Coryphæschna being excluded. Taxonomic characters are discussed on pages 4 to 25; variations on pages 25-30 and General Life-history on pages 30-56. Pages 56-202 are taken up in a systematic treatment of the species. Keys are given for the identification of the males and the females. The keys are followed with full descriptions of the species, distributions, etc. Pages 203-213 give a list of the literature cited. The volume closes with a series of magnificent plates, Nos. 1 to 28, reproduced from the author's own drawings. The cost of the plates was generously met by Sir Edmund Walker, Chairman of the Board of Governors of the University. Entomologists generally will welcome this valuable publication.

WICKHAM, H. F. AND WOLCOTT, A. B. Notes on Cleridæ from North and Central America; Bulletin of the State University of Iowa, Vol. VI, No. 3, pp. 49-67. This paper is a catalogue of the species of cleridæ contained in the collection of the senior author and is intended as a contribution to the exact knowledge of the distribution of the species of the family on the North American continent. Three new species and two new varieties described. Many Canadian records are given.

WINN, ALBERT F. A Preliminary List of the Insects of the Province of Quebec, Part I, Lepidoptera. Published as a supplement to Report of the Quebec Society for the Protection of Plants, 1912. This very useful list of 103 pages has recently been received. The arrangement of the order is similar to that adopted by Smith in his 1909 edition of the Insects of New Jersey. Before each family a brief account of the chief characters are given, and under each species all localities known to the author within the Province are mentioned, together with the month in which the species was met with. The name of the collector is indicated by an abbreviation explained in the opening chapter. This list will prove of much value not only to lepidopterists within the Province of Quebec, but to all others interested in North American species. Our hearty congratulations are extended to the compiler, to the Society in its work in connection with the list, and to the Quebec Government for its aid in having the list printed. We hope that other parts will appear soon. If an index were added to the next part published it would add very much to its value.

The following is a list of the names and addresses of collectors heard from during 1912:—

Anderson, E. M., Provincial Museum, Victoria, B.C.
Baird, Thomas, High River, Alta.
Beaulieu, G., Experimental Farm, Ottawa.
Beaulne, J. I., Experimental Farm, Ottawa.
Bethune, Rev. Prof., O. A. C., Guelph.
Boulton, A. R. M., Quebec, Que.
Brittain, W., Vernon, B.C.
Bush, A. H., 1105 Ninth Ave., Vancouver, B.C.
Chagnon, Gus., Box 521, Montreal.
Chagnon, W., St. Johns, Que.
Cockle, J. W., Kaslo, B.C.
Crew, R. J., 561 Carlaw Ave., Toronto.
Criddle, Norman, Treesbank, Man.
Dawson, Horace, Hymers, Ont.
Day, G. O., Duncans, B.C.
Dod, F. H. Wolley, Midnapore, Alta.
Evans, J. D., Trenton, Ont.
Fyles, Rev. T. W., 368 Frank St., Ottawa.
Germain, Rev. Bro., 125 Empress St., Ottawa.
Gibson, Arthur, Experimental Farm, Ottawa.
Hahn, Paul, 433 Indian Road, Toronto.
Haight, D. H., Sudbury, Ont.
Hanham, A. W., Duncans, B.C.
Harms, J. F., Treesbank, Man.
Harrington, W. H., P. O. Department, Ottawa.
Heath, E. F., Cartwright, Man.
Hewitt, Dr. C. Gordon, Experimental Farm, Ottawa.
Hoyler, Rev. Clement, Dundurn, Sask.
Hudson, A. F., Millarville, Alta.
Hudson, H. F., Strathroy, Ont.
Keen, Rev. J. H., Metlakatla, B.C.
Leavitt, A. G., St. John, N.B.
Lyman, H. H., 74 McTavish Street, Montreal.
McIntosh, W., St. John, N.B.
Mignault, Rev. J. B., St. Therese, Que.
Moore, G. A., 850 St. Hubert St., Montreal.
Moore, W. H., Scotch Lake, N.B.
Metcalfe, W., 284 Lisgar St., Ottawa.
Nelles, Douglas H., Dept. Interior, Ottawa.
Nicholls, Arch., Sault Ste. Marie, Ont.
Perrin, Jos., McNab's Island, Halifax, N.S.
Richard, Rev. A. E., Perkins, Que.
Sanders, G. E., Bridgetown, N.S.
Sanson, N. B., Banff, Alta.
Simpson, W., Dominion Observatory, Ottawa.
Sladen, F. W. L., Experimental Farm, Ottawa.

Swaine, J. M., Experimental Farm, Ottawa.
Tothill, J. D., Fredericton, N.B.
Treherne, R. C., Agassiz, B.C.
Venables, E. P., Vernon, B.C.
Walker, Dr. E. M., Univ. of Toronto, Toronto
Wallis, J. B., Machray School, Winnipeg, Man.
Willing, Prof. T. N., Univ. of Saskatchewan, Saskatoon, Sask.
Winn, A. F., 32 Springfield Ave., Westmount, Que.
Young, C. H., Victoria Memorial Museum, Ottawa.

NOTES OF CAPTURES.

(Species preceded by an asterisk (*) described during 1912.)

LEPIDOPTERA.

(Arranged according to Dyar's List of North American Lepidoptera, U.S. N.M. Bull. No. 52).

(Dyar's number).

41. *Nathalis iole* Bdv. Winnipeg, Man., Sept. 4, 1 specimen, quite fresh, (Wallis).

Argynnis sakuntala Skinner. Entered in last year's Record. This form is the one recorded in the Alberta list as "*monticola* Behr?" Can. Ent., XL., 151, May, 1908, (Dod).

216. *Eugonia californica* Bdv. Banff, Alta.; last year this species was more or less abundant in Sept. I had never noticed or taken it before; several again this year, (Sanson): common in late fall of 1911; fresh looking specimens were seen in spring of 1912, but I saw no sign of the species this fall (1912)—Hanham.

284. *Coenonympha typhon laidon* Bork. Perkins, Que., locally abundant for about a month; last specimen seen on July 13, (Richard).

371. *Incisalia augustus* Kirby. Byron, Ont., May 16, 1908, (J. A. Morden).

555. *Limochroes bimacula* G. & R. The record on page 97 of Report for 1905 should have been credited to J. A. Morden. Since, the species has again been collected at London, on July 1.

559. *Limochroes dion* Edw. Hyde Park Corner, near London, Ont., July 20, 1909, (J. A. Morden).

728. *Marumba modesta* Harris, form *occidentalis* Hy. Edw. Banff, Alta., June 12, (Sanson); Lethbridge, Alta., June, (Miss L. Bentley).

847. *Turuptiana permaculata* Pack. Lethbridge, Alta., July 12, (Miss. L. Bentley).

853. *Estigmene prima* Slosson. Halifax, N.S., June 9, (Perrin).

872. *Hyphoraia parthenos* Harris. Banff, Alta., June 24, (Sanson).

960. *Panthea acronyctoides* Walk. MacNab's Island, Halifax, N.S., June 15, (Perrin).

1008. *Apatela funeralis* Grt. Husavick, Man., 6 specimens, June 22, (Criddle and Wallis).

Apatela tristis Smith. Winnipeg, Man., June 17, 1910; Husavick, Man., June 22, 1912, two females, (Wallis). This form was included in the original material to which the name *inclara* was given by Smith, that is, the series referred to under *hamamelis* in Smith and Dyar's Monograph. It is probably the very form which caused the confusion of the series with true *hamamelis* Guen.=*afflicta* Grt., which it resembles very closely in colour. Plate xii., fig. 12, of the monograph is most likely *tristis,* (Dod).

1053. *Harrisimemna trisignata* Walk. Winnipeg, Man., June 13, 1 specimen at light; new, I think, to Manitoba, (Wallis)

1097. *Platyperigea praeacuta* Smith. Peachland, B.C., Aug., 10, (Wallis).

1109. *Caradrina miranda* Grt. Duncan's, B.C., May, first record for this locality (Hanham).

1151. *Hadena violacea* Grt. Clayoquot, B.C., Aug. 4, 1909, (Anderson).

1199. *Hadena versuta* Smith. St. Therese Island, St. John's Co., Que., July 15, (Chagnon). New to the Quebec list.

1211. *Hadena stipata* Morr. Bridgetown, N.S., Sept. 2, (Sanders).

1215. *Hadena longula* Grt. Peachland, B.C., Aug. 13, (Wallis).

Feralia furtiva Sm. Hymers, Ont., (Dawson).

1331. *Oncocnemis levis* Grt. Lethbridge, Alta., Aug. 23, (Wallis). New to Canada, (Dod).

Oncocnemis laticollis Smith. (Jour. N. Y. Ent. Soc., xvi., 94, June, 1906). Peachland, B.C., Aug. 14, one male (Wallis). Described from Stockton, Utah. The Peachland specimen agrees with specimens from type locality, but is rather more powdery, and has faint indications of median lines, (Dod).

1360. *Oncocnemis regina* Smith. Lethbridge, Alta., Aug. 26, (Wallis). Differs somewhat from type, but if not this species it is indescribed, (Dod).

1391. *Rhynchagrotis brunneicollis* Grt. Aweme, Man., July 29, (Criddle). I can find no previous record for Canada, (Dod).

Aplectoides occidens Hampson. The type of this species is a female in the British Museum labelled "B.C., (Richardo). It formerly stood under *imperita* and was referred to by me under that heading in the Entomological Record for 1910. Another female in my own collection is a co-type, and was taken by Mr. Wallis, at Penticton, B.C., on Aug. 18th, several years ago. I have seen no others. Its nearest ally is *fales* Smith, which I consider an obscure form of *pressa,* (Dod).

1419. *Platagrotis condita* Gn. Husavick, Man., June 22, 23, two males, (Wallis). The name has previously been recorded from Manitoba, but these are the first I have seen like it. They come very close to Hampson's figure but may possibly be distinct. The specimen figured by Hampson is from Montreal, and the species should be added to the Quebec list, (Dod).

1420. *Platagrotis sincera* H.-S. Banff, Alta., Aug. 19, 1909; Aug. 29, Sept. 1 5, 1911, four males at light, (Sanson). I use the name *sincera* tentatively, as it stands in our lists as from Labrador. Staudinger also gives Labrador with several European and Asiatic localities. Hampson adds "U.S.A., mountains of northern and middle States"; on what authority I know not, as there are no North American specimens in the collection. The Banff form seemed to me to come nearer some specimens under *gelida,* though not to the one Hampson figured as such, (Dod).

Setagrotis filiis Smith. This species which I recorded from Banff previously, turns out to be the *vernilis* of Grote, the *vernilis* of the Kootenai list being apparently another species, (Dod).

1535. *Feltia robustior* Smith. Aweme, Man., Aug. 17, 19, (Criddle).

1553. *Euxoa catenula* Grt.=*contagionis* Smith. Peachland, B.C., Aug. 10, one female, (Wallis). This is the first true *catenula* that I have seen from Canada, the specimen being one of those forms which closely resemble *Porosagrotis vetusta* in colour and some of the markings, thus accounting for the original confusion of the two species. As to structure it has closer allies in *Euxoa* than in *Porosagrotis,* (Dod).

1650. *Euxoa septentrionalis* Walk.=*incubita* Smith. Lethbridge, Altâ., Aug. 21, (Wallis). Though the name has previously been recorded, this is the first specimen I have seen from Canada east of the Rockies, that I have been sure of. It resembles specimens from Vancouver Island, where the species is common. It also occurs in California and Arizona. It is quite distinct from *messoria,* (Dod).

1673. *Euxoa recticincta* Smith. Lethbridge, Alta., Aug. 23, 1 at light, (Wallis). The second specimen ever recorded, (Dod).

1693. *Euxoa mollis* Walk. Aweme, Man., July 18, two males, (Criddle).

Anytus derelicta Hampson. Sir George Hampson has thus decided to name the species hitherto passing as *Fishia yosemitae.* I pointed out in Can. Ent. xliii, 398, Dec. 1911, that the species was not *yosemitae,* (Dod).

1788. *Mamestra liquida* Grt. McNab's Island, Halifax, July 14, 1911, (Perrin).

1789. *Mamestra capsularis* Gn. Winnipeg, Man., June 15, 1911, very rare (Wallis).

1894. *Xylomiges dolosa* Grt. Cartwright, Man., 1 specimen, first I have taken, (Heath).

1937. *Anarta secendens* Walk. Banff, Alta., July 25, 1911; June 20, 21, 1912; five males, on electric light poles, (Sanson). The only other specimen I ever saw is the type in the British Museum, from St. Martin's Falls, Hudson Bay territory, with which I have compared a specimen. Hampson places it in the genus *Polia* which he uses as a prior name to *Mamestra,* but it really agrees better with *Anarta* as used by him, and is nearest *richardsoni* in structure. It has broadly black-bordered yellow secondaries, (Dod).

1962. *Heliophila rubripennis* G. & R. Hymers, Ont., (Dawson).

2133. *Cucullia cinderella* Smith. Cartwright, Man., (Heath).

2142. *Rancora solidaginis* Behr. Banff, Alta., Aug. 20, (Sanson).

2148. *Arzama diffusa* Grt. Meach Lake, Que., July 29, 1906, (Young). New to Quebec list.

Hydroecia micacea Esp. Bridgetown, N.S., Oct. 10, (Sanders).

Gortyna pallescens Smith. Lethbridge, Alta., Aug. 26, 1912, (Wallis).

2249. *Glæa sericea* Morr. Meach Lake, Que., Sept. 16, 1903, (Young). New to Quebec list.

2255. *Epiglaea decliva* Grt. Byron, Ont., Oct. 24, 1908, (J. A. Morden).

2259. *Calymnia orina* Gn. Meach Lake, Que., Aug. 8, 1906, (Young). New to Quebec list.

2437. *Cirrophanus triangulifer* Grt. London, Ont., Aug. 18, 1911, (J. A. Morden).

2485. *Autographa biloba* Steph. Winnipeg, Man., June 9, one only; the first specimen taken here since Hanham's capture, (Wallis).

Authographa orophila Hampson. Peachland, B.C., Aug. 10, 1912; Penticton, Aug. 13, 1909, (Wallis).

2556. *Anomis erosa* Hbn. Winnipeg, Man., Sept. 9, 1912, (Wallis).

2847. *Catocala semirelicta* Grt. Husavick, Man., Aug. 21, 1910, (Wallis).

2886. *Catocala coelebs* Grt. Bridgetown, N.S., Sept. 9, (Sanders).

2905. *Catocala gracilis* Edw. Meach Lake, Que., Aug. 6, 1904, (Young). New to Quebec list.

2996. *Homoptera galbanata* Morr. Winnipeg, Man., May and June; recorded as *lineosa* Sm. Hampson refers it to Morrison's species; common at sugar and very variable, (Wallis).

3002. *Homoptera duplicata* Bethune. Winnipeg, Man., 2 specimens, May 24, 28, very rare, (Wallis).

3006. *Erebus odora* L. Banff, Alta., Aug. 13, 1912; a specimen also taken here on Aug. 9, 1910, (Sanson). Mr. J. D. Evans informs me that a fine specimen was taken in the office of the Canada Mines Co., at Trenton, Ont., on Aug. 29.

3007. *Thysania zenobia* Cram. Cartwright, Man., Sept. 5, (Heath).

Eupithecia agnesata Taylor. Kaslo, B.C., one, the second specimen taken, (Cockle).

3337. *Epirrita dilutata* D. & S. Duncan's B. C., Oct. 21, first specimen taken, (Hanham).

3477. *Deptalia insulsaria* Gn. Meach Lake, Que., July 2, 1905; Aug. 18, 1906, (Young). New to Quebec list.

3586. *Chlorosea nevadaria* Pack. Duncan's B.C., one at sugar, July, (Hanham).

3636. *Deilinia liberaria* Walk. Meach Lake, Que., Sept. 6, 1902, (Young). New to Quebec list.

4014. *Sabulodes arcasaria* Walk. Meach Lake, Que., June 10, 1904, (Young). New to Quebec list.

Olene styx B. & McD. Banff, Alta., July 21, 25, 1911, four males, (Sanson). Paler than specimens from Vancouver Island, the type locality, but I think this species, (Dod).

4316. *Diaphania nitidalis* Stoll. Meach Lake, Que., Aug. 11, 1903, (Young). New to Quebec list.

4337. *Crocidophora serratissimalis* Zell. St. John's, Que., June 18, 1911, (W. Chagnon). New to Quebec list.

4411. *Phylctaenia extricalis* Gn. Meach Lake, Que., June 17, 1904, (Young). New to Quebec list.

4496. *Nymphula obliteralis* Walk. St. John's, Que., July, 1911, (G. Chagnon).

4543. *Schoenobius unipunctellus* Rob. St. John's, Que., June 18, 1911, (W. Chagnon). New to Quebec list.

4563. *Crambus pascuellus* Linn. Dawson, Y.T., July 8 to 16. (Record received from Mr. Winn).

4583. *Crambus mycllus* Hubn. Meach Lake, Que., July 26, 1907; July 28, 1902; Aug. 3, 1905, (Young). New to Quebec list.

4639. *Epipaschia zelleri* Grt. Aweme, Man., June 1, 1911, reared from Poison Ivy, *Rhus toxicodendron*, (Criddle).

4680. *Myelois corniella* Rag. Meach Lake, Que., July 28, 1905; Aug. 1-5, 1905, (Young). New to Quebec list.

4990. *Pterophorus inquinatus* Zell. Trenton, Ont., Aug. 11, 15, 1911, (Evans).

5006. *Bactra lanceolana* Hubn. Meach Lake, Que., June 19, 23 and 25, 1905, (Young). New to Quebec list.

5007. *Bactra furfurana* Haw. Meach Lake, Que., July 8, 11, 1905, (Young). New to Quebec list.

5020. *Exartema atrodentanum* Fern. St. John's, Que., July 29, 1911, (G. Chagnon). New to Quebec list.

5030. *Olethreutes frigidana* Pack. St. John's, Que., June 22, 1911, (G. Chagnon). New to Quebec list.

5031. *Olethreutes nimbatana* Clem. Bridgetown, N.S., Aug. 9, (Sanders).

5035a. *Olethreutes albeolana* Zell. St. John's Que., June 16, 1911, (G. Chagnon). New to Quebec list.

5038. *Olethreutes hebesana* Walk. Hull, Que., (Gibson). New to Quebec list.

5049. *Olethreutes duplex* Wlsm. St. John's Que., June 18 and 20, 1911, (G. and W. Chagnon). New to Quebec list.

5052. *Olethreutes auricapitana* Walsm. Meach Lake, Que., June 25, 1903; July 18, 1905, (Young). New to Quebec list.

5056. *Olethreutes coruscana* Clem. Trenton, Ont., June 12, 1911, (Evans).

5068. *Olethreutes glaciana* Moschl. Meach Lake, Que., June 14, July 18, 28, 1905, (Young); new to Quebec list; Trenton, Ont., June 11, 18. (Evans).

5078. *Pseudogalleria inimicella* Zell. Montreal, June 4, 1911, (Winn). New to Quebec list.

5121. *Eucosma juncticiliana* Walsm. Meach Lake, Que., July 26, 1903; Aug. 5, 1902, (Young). St. John's, Que., July, 1911, (G. Chagnon). New to Quebec list.

5131. *Eucosma nisella* Clerck. Meach Lake, Que., July 27, Aug. 12, 1905, (Young). New to Quebec list.

5143. *Eucosma similana* Hubn. Meach Lake, Que., Sept. 4, 1904; Aug. 27, 1907, (Young). New to Quebec list.

5167. *Thiodia aspidiscana* Hubn. Meach Lake, Que., June 9, 1905, (Young). New to Quebec list.

5168. *Thiodia ferruginana* Fern. Meach Lake, Que., June 9, 1905, (Young). New to Quebec list.

Epinotia dietziana Kearf. St. John's, Que., June 17, 1911, (G. Chagnon). New to Quebec list.

5235. *Epinotia lindana* Fern. Meach Lake, Que., Sept. 4, 11, 1904, (Young). New to Quebec list.

Ancylis carbonana Kearf. Montreal, May 27, 1911, (Chagnon). New to Quebec list.

5246. *Ancylis spiræifoliana* Clem. Meach Lake, Que., June 7, 1903, (Young). New to Quebec list.

5255. *Ancylis divisana* Walk. Meach Lake, Que., July 8, 1904; June 23, 1905; July 1, 1905, (Young). New to Quebec list.

5261. *Ancylis goodelliana* Fern. Meach Lake, Que., June 9, 1905: Aug. 9, 1905, (Young). New to Quebec list.

5299. *Alceris effractana* Frol. Meach Lake, Que., Aug. 4, 1905, (Young). New to Quebec list.

5309. *Alceris hastiana* Linn. Meach Lake, Que., June 16, 1905; Sept. 16, 25, 1905, (Young). New to Quebec list.

5324. *Alceris americana* Fern. Meach Lake, Que., Sept. 2, 1905, (Young). New to Quebec list.

5381. *Archips dissitana* Grt. Meach Lake, Que., July 23, 1903, (Young): East Bolton, Que., July 20, 1911, (Winn). New to Quebec list.

5407. *Tortrix packardiana* Fern. Meach Lake, Que., June 19, 1903, (Young). New to Quebec list.

5408. *Tortrix conflictana* Walk. Dawson, Y.T. (Record received from Mr. Winn).

5427. *Eulia mariana* Fern. Mt. St. Hilaire, Que., May 14, 1911, (G. Chagnon). New to Quebec list.

5446. *Phalonia argentilimitana* Rob. Meach Lake, Que., July 9, 11, 1905, (Young). New to Quebec list.

5451. *Phalonia interruptofasciata* Rob. St. John's, Que., June 17, 1911, (G. Chagnon). New to Quebec list.

5488. *Periclymenobius canariellus* Walsm. Meach Lake, Que., Aug. 5, 1904, (Young). New to Quebec list.

5519. *Choreutis inflatella* Clem. Meach Lake, Que., Aug. 5, 1905, (Young). New to Quebec list.

5578. *Aristotelia rubidella* Clem. Meach Lake, Que., July 15, 1905, (Young). New to Quebec list.

Recurvaria piceaella K. Meach Lake, Que., June 19, 21, 1905, (Young). New to Quebec list.

5659. *Trichotaphe alacella* Clem. Trenton, Ont., July 9, 1911, (Evans).

5661. *Trichotaphe nonstrigella* Chamb. Meach Lake, Que., June 8, 1903; June 9, 1905, (Young). New to Quebec list.

5664. *Trichotaphe setosella* Clem. East Bolton, Que., July 18, 1911, (Winn). New to Quebec list.

5704. *Anacampsis niveopulvella* Chamb. Meach Lake, Que., July 15, 1904; July 28, 1905; Aug. 7, 1905, (Young). New to Quebec list.

5724. *Gelechia lugubrella* Fab. Trenton, Ont., May 31, June 2, 1911, (Evans).

5764. *Gelechia mediofuscella* Clem. Meach Lake, Que., May 26, 1905, (Young). New to Quebec list.

5765. *Gelechia walsinghami* Dietz. St. John's, Que., June 18, 1911, (W. Chagnon).. New to Quebec list.

5918. *Euclemensia bassettella* Clem. Meach Lake, Que., July 23, 1902, (Young). New to Quebec list.

5920. *Epicallima argenticinctella* Clem. Meach Lake, Que., July 8, 1905, (Young). New to Quebec list.

6058. *Batrachetra praeangusta* Haw. Meach Lake, Que., July 27, 1905; Aug. 8, 1905, (Young). New to Quebec list.

6362. *Gracilaria stigmatella* Fab. Meach Lake, Que., Sept. 9, 1904, (Young). New to Quebec list.

6378. *Gracilaria burgessiella* Zell. Meach Lake, Que., Aug. 12, 1904; July 28, 1905; Aug. 2, 1905, (Young). New to Quebec list.

6418. *Lyonetia speculella* Clem. Meach Lake, Que., Aug. 22, 1905, (Young). New to Quebec list.

Argyresthia thuiella Pack. Hull, Que., (Gibson). New to Quebec list.

Monopis insignisella Walk. Dawson, Y.T. (Record received from Mr. Winn).

6503. *Tinea fuscipunctella* Haw. St. John's, Que., June 18, 1911, (W. Chagnon). New to Quebec list. Mr. Evans has taken this species at Trenton, Ont., in the middle of June.

6534. *Amadrya effrenatella* Clem. Meach Lake, Que., July 9, 1905, (Young). New to Quebec list.

6558. *Adela ridingsella* Clem. Meach Lake, Que., May 3, 1903; June 22, 1904; June 29, 1905, (Young). New to Quebec list.

6622. *Epimartyria auricrinella* Walsm. Meach Lake, Que., June 19, 1905, (Young). New to Quebec list.

COLEOPTERA.

(Arranged according to Henshaw's list of the Coleoptera of America, North of Mexico).

18c. *Cicindela montana* Lec. Yorktown, Sask., July, (Harms).

25f. *Cicindela limbalis* Kl. Yorktown, Sask., July, (Harms).

34. *Cicindela pusilla* Say. Yorktown, Sask., July, (Harms).

118. *Carabus chamissonis* Fisch. Rampart House, Y. T., (Nelles).

167. *Loricera caerulescens* Linn. Port Medway, N.S., Aug., (P. G. Bolster).

172. *Opisthius richardsoni* Kirby. Lethbridge, Alta., Aug. 22, (Miss D. Church).

175. *Notiophilus nitens* Lec. 18 miles south of Rampart House, Y. T., (Nelles).

195. *Nebria sahlbergi* Fisch. 18 miles south of Rampart House, Y. T., (Nelles).

449. *Tachys nanus* Gyll. 18 miles south of Rampart House, Y. T., (Nelles).

583. *Pterostichus luczotii* Dej. Banff, Alta., June 12, 1909, (Wallis).

595. *Pterostichus hudsonicus* Lec. 18 miles south of Rampart House, Y. T., (Nelles).

627. *Amara cylindrica* Lec. Winnipeg, Man., May 27, 1909, (Wallis).

667. *Amara protensa* Putz. Winnipeg, Man., May 7, 1909, (Wallis).

678. *Amara remotestriata* Dej. Peachland, B.C., July 24, 1909, (Wallis).

682. *Amara subaenea* Lec. Peachland, B.C., Aug. 5, 1909, (Wallis).

683. *Amara musculus* Say. Peachland, B.C., Aug. 2, 1909, (Wallis).

743. *Calathus ingratus* Dej. Aweme, Man., May 5, 1905, (Criddle); 10 miles south of Rampart House, Y. T., May 10, (Nelles).

794. *Platynus affinis* Kirby. Husavick, Man., July 11, 1910, (Wallis).

801. *Platynus hardyi* Lec. Weymouth, N.S., Aug., 1900, (P. G. Bolster).

823. *Platynus bembidioides* Kirby. Regina, Sask., May 24, (Willing).

990. *Zacotus matthewsii* Lec. Mt. Lahman, B.C., (S. Hadwin); Victoria, B.C., (E. H. Blackmore).

1029. *Chlaenius niger* Rand. Aweme, Man., (Criddle).
1043. *Oodes fluvialis* Lec. Ottawa, 1 sp., Oct. 18, (Beaulieu).
1081. *Harpalus amputatus* Say. 33 miles south of Rampart House, Y. T., (Nelles).
* *Haliplus vancouverensis* Matheson. "Vancouver Island, B.C.," Jour. N. Y. Ent. Soc., xx, 168.
* *Haliplus connexsus* Matheson. "Canada, (Nova Scotia)," Jour. N. Y. Ent. Soc. xx, 164.
1293. *Coelambus sellatus* Lec. Vernon, B.C., (Venables).
1423. *Agabus semipunctatus* Kirby. Vernon, B.C., (Venables).
1450. *Agabus clavatus* Lec. Vernon, B.C., hibernating in rotten logs in swamps, Nov. 7, (Venables).
1467. *Rhantus tostus* Lec. Vernon, B.C., April 12, (Venables).
1645. *Hydrobius tessellatus* Ziegl. Port Medway, N.S., July, (P. G. Bolster).
1646. *Hydrobius scabrosus* Horn. Millarville, Alta., (Dod).
1707. *Silpha trituberculata* Kirby. Aweme, Man., May 26, 1909,(E. Criddle); Husavick, Man., June 23, (Wallis).
2055. *Aleochara bimaculata* Grav. Aweme, Man., Aug. 22, 1910, (Criddle).
2096. *Heterothops fumigatus* Lec. Winnipeg, Man., May 8, 1909, (Wallis).
2103. *Quedius capucinus* Grav. Winnipeg, Man., May 21, 1909, (Wallis).
2179. *Philonthus longicornis* Steph. Port Medway, N.S., July, 1910, (P. G. Bolster).
2185. *Philonthus fusiformis* Melsh. Husavick, Man., Aug. 27, 1910, (Wallis).
2204. *Philonthus sordidus* Grav. Port Medway, N.S., July, 1910, (P. G. Bolster).
2303. *Stenus bipunctatus* Er. Vernon, B. C., (Venables).
2512. *Lathrobium punctulatum* Lec. Aweme, Man, (Criddle).
2647. *Conosoma knoxii* Lec. Aweme, Man., Oct. 11, 1910, (Criddle).
2681. *Olisthaerus megacephalus* Zett. 24 miles south of Rampart House, Y. T., (Nelles).
2682. *Olisthaerus substriatus* Gyll. Ottawa, Nov. 6, (Beaulieu).
9679. *Bledius strennus* Casey. Aweme, Man., May 26, 1909, (T. Criddle); June 29, 1911, (N. Criddle).
9690. *Bledius assimilis* Casey. Aweme, Man., (Criddle).
2712. *Bledius armatus* Er. Aweme, Man., July 30, 1907, (Criddle).
2715. *Bledius politus* Er. Aweme, Man., (Criddle).
2722. *Bledius rubiginosus* Er. Aweme, Man., May 28, (S. Criddle).
2749. *Oxytelus sculptus* Grav. Aweme, Man., (Criddle).
2753. *Oxytelus fuscipennis* Mann. Aweme, Man., Oct. 2, 1909, (Criddle).
2757. *Oxytelus nitidulus* Grav. Treesbank, Man., July 25, 1910, (Wallis).
3017. *Sacium lunatum* Lec. Ottawa, Sept., (Beaulieu).
3060. *Coccinella monticola* Muls. 18 miles south of Rampart House, Y.T., (Nelles).
3072. *Harmonia 12-maculata* Gebl. Aweme, Man., June 24, 1911, (E. Criddle).
3090. *Pentilia misella* Lec. Ottawa, Aug., (Beaulieu).
Hyperaspis nevadica Casey. Aweme, Man., (Criddle).
Hyperaspis inflexa Casey. Aweme, Man., (Criddle).
3112. *Hyperaspis proba* Say. Aweme, Man., July 4, 1911, (Criddle).
3147. *Scymnus brullei* Muls. Aweme, Man., Aug. 23, 1911, (Criddle).
3152. *Scymnus puncticollis* Lec. Aweme, Man., (Criddle).

3157. *Scymnus lacustris* Lec. Aweme, Man., May 18, 1905, (Criddle).
3314. *Pediacus fuscus* Er. Rampart House, Y.T., (Nelles).
 * *Lasconotus schwarzi* Kraus. Victoria, B. C., (Hubbard & Schwarz, Proc. Ent. Soc. Wash., XIV, 37.
 * *Simplocaria columbica* Csy. "British Columbia (Cariboo District)"
 * *Morychus insulsus* Csy. Vernon, B. C., (Venables).
 * *Cytilus longulus* Csy. "Washington State and British Columbia to Colorado."
 * *Byrrhus brunnescens* Csy. "Lake Superior, (White Fish Point)."
 * *Byrrhus manitobæ* Csy. Aweme, Man., (Criddle).
 * *Byrrhus angustulus* Csy. Aweme, Man., (Criddle).
 * *Byrrhus criddlei* Csy. Aweme, Man., (Criddle).
 * *Byrrhus laramiensis* Csy. Aweme, Man., (Criddle).
 * *Byrrhus egenus* Csy. Donald, B. C., (A. G. Smith).
 * *Byrrhus consuetus* Csy. Aldermere, B. C., (Keen).
 * *Porcinolus hystrix* Csy. Aweme, Man., (Criddle).
 * *Lioligus striolatus* Csy. Metlakatla, B. C., (Keen).
 * *Lioligus keeni* Csy. Metlakatla, B. C., (Keen).
 * *Lioligus æquabilis* Csy. Victoria, B.C.,
 * *Lioon speculare* Csy. Metlakatla, B.C., (Keen).

The above new species of Byrrhidæ are described by Thos. L. Casey in his Memoirs on the Coleoptera, III, issued March 20, 1912.

3797. *Corticaria pubescens* Gyll. Saskatoon, Sask., Oct. 9, (Willing).
3849. *Peltis ferruginea* Linn. 18 miles south of Rampart House, Y. T., (Nelles).
3929. *Elmis elegans* Lec. Port Medway, N.S., July, (P. G. Bolster).
3954. *Ancyronyx variegatus* Germ. Port Medway, N.S., July, (P. G. Bolster).
3970. *Heterocerus undatus* Melsh. Vernon, B.C., July, 1909, (Venables).
4003. *Helodes pulchella* Guer. Port Medway, N.S., July, 1910, (P. G. Bolster).
4478. *Corymbites triundulatus* Rand. Aweme, Man., (Criddle).
 Poecilonota cupripes Casey. Husavick, Man., July 7, 1910 (Wallis).
4621. *Melanophila drummondi* Kirby. Rampart House, Y.T., (Nelles).
4623. *Melanophila gentilis* Lec. Peachland, B.C., July 19, (Wallis).
4646. *Chrysobothris carinipennis* Lec. Peachland, B.C., Aug. 2, (Wallis).
 Chrysobothris verdigripennis Frost. Port Maitland, N. S., Aug. 2, 1910, (W. Rieff).
4716. *Chrysophana placida* Lec. Peachland, B.C., July 19, (Wallis). Mr. Harrington has one specimen taken on Vancouver Island, B.C.
4718. *Eupristocerus cognitans* Web. Greenfield, N.S., July 12, 17, 1910, (P. G. Bolster).
4742. *Agrilus politus* Say. Greenfield, N.S., July 13, 16, 1910, (P. G. Bolster).
 Agrilus lateralis Say. Greenfield, N.S., July 13, 16; Port Medway, July 7, 1910, (P. G. Bolster).
 Agrilus pensus Horn. Greenfield, N.S., July 13, 16; Port Medway, Aug. 14, 1910, (P. G. Bolster).
4787. *Eros aurora* Hbst. Banff, Alta., June 10, 1909, (Sanson).
4791. *Eros trilineatus* Melsh. Port Medway, N.S., July, 1910, (P. G. Bolster).
4815. *Ellychnia corrusca* Linn. Rampart House, Y.T., (Nelles).

5185. *Thanasimus undulatus* Say. 18 miles south of Rampart House, Y.T., (Nelles).

5185a. *Thanasimus nubilis* Kl. Rampart House, Y.T., (Nelles).

5468. *Aegialia lacustris* Lec. Husavick, Man., June 12, 1909, (Wallis).

5514. *Aphodius erraticus* Linn. Port Medway, N.S., July, 1910, (P. G. Bolster).

5552. *Aphodius brevicollis* Lec. Saskatoon, Sask., Oct. 3, (Willing).

5603. *Geotrupes balyi* Jek. Port Medway, N.S., July, 1910, (P. G. Bolster).

5658. *Dichelonycha canadensis* Horn. Millarville, Alta., (Dod).

5771. *Lachnosterna marginalis* Lec. Port Maitland, N.S., (W. Rieff).

* *Asemum brevicorne* Casey. "Ontario," Memoirs on the Coleoptera, III, by Thos. L. Casey, issued March 20, 1912.

* *Asemum costulatum* Casey. Aldermere, B.C., (Keene); Memoirs on the Coleoptera, III, by Thos. L. Casey, issued March 20, 1912.

5975. *Criocephalus agrestis* Kirby. 18 miles south of Rampart House, Y.T., (Nelles).

5974. *Criocephalus productus* Lec. Banff, Alta., Sept. 28, 1911, (Sanson).

5976. *Criocephalus asperatus* Lec. Banff, Alta., Sept. 8, 1911, (Sanson).

5981. *Tetropium velutinus* Lec. Aweme, Man., April 15, 1904, (Criddle).

* *Tetropium columbianum* Casey. Inverness, B.C., (Keen); Memoirs on the Coleoptera, III, by Thos. L. Casey, issued March 20, 1912.

5986. *Gonocallus collaris* Kirby. Aweme, Man., June 11, 1906, (Criddle).

* *Callidium frigidum* Casey. "Canada," Memoirs on the Coleoptera, III, by Thos. L. Casey, issued March 20, 1912.

* *Hypermallus canadensis* Casey. "Canada (Ontario)"; Memoirs on the Coleoptera, III, by Thos L. Casey, issued March 20, 1912.

6008. *Callidium antennatum* Newm. 18 miles south of Rampart House, Y.T., (Nelles).

6079. *Tylonotus bimaculatus* Hald. Ottawa, Aug.-Sept., (Beaulieu).

6092. *Obrium rubrum* Newm. Aweme, Man., June 29, 1903, (Criddle).

6099. *Molorchus longicollis* Lec. Vernon, B.C., at thorn blossom, May, 1908, (Venables).

6129. *Purpuricenus humeralis* Fab. March, Ont., (Miss Sweeney).

6141. *Batyle saturalis* Say. Saskatoon, Sask., July 4, (Willing).

6168. *Cyllene antennatus* White. Victoria, B.C., July 11, (Miss Farmer).

6172. *Cyllene decorus* Oliv. Lethbridge, Alta., Aug. 26, (Wallis).

* *Xylotrechus columbianus* Casey. Aldermere, B.C., (Keen); Memoirs on the Coleoptera, III, by Thos. L. Casey, issued March 20, 1912.

6183. *Xylotrechus undulatus* Say. 18 miles south of Rampart House, Y.T., (Nelles).

6197. *Neoclytus conjunctus* Lec. Victoria, B.C., 1911, (Miss Farmer).

6199. *Neoclytus muricatulus* Kirby. Greenfield, N.S., July, 1910, (P. G. Bolster).

6226. *Necydalis lævicollis* Lec. Victoria, B.C., July, (E. H. Blackmore).

6233. *Centrodera decolorata* Harr. Port Medway, N.S., (W. P. Henderson).

6240. *Toxotus trivittatus* Say. Aweme, Man., July 11, 1911, (Criddle).

6266. *Acmæops supilosa* Lec. Banff, Alta., June 26, 1911, (Sanson).

6273. *Acmæops proteus* Kirby. 18 miles south of Rampart House, Y.T., (Nelles).

6274. *Acmæops pratensis* Laich. 18 miles south of Rampart House, Y.T., (Nelles).

6297. *Leptura emarginata* Fab. Near Parry Sound, Ont., June, (record sent by L. Caesar).

6304. *Leptura subhamata* Rand. Chelsea, Que., males and females *in coitu,* July 14, (Gibson); Hochelaga, Que., June, 1897, (Beaulieu).

6323. *Leptura instabilis* Hald. Banff, Alta, July 25, 1910, (Sanson).

6330. *Leptura nigrella* Say. Aweme, Man., June 15 to July 4, (E. & N. Criddle).

6340. *Leptura quadrillum* Lec. Shawnigan, B.C., July 8, (Wallis).

6446. *Acanthocinus obliquus* Lec. Peachland, B.C., July 19, (Wallis).

6477. *Saperda obliqua* Say. Port Medway, N.S., July, 1910, (P. G. Bolster).

6481. *Saperda cretata* Newm. Winnipeg, Man., June 30, 1911, (Wallis).

6495. *Oberea tripunctata* Swed., var. *bimaculata* Oliv., form *aculaticollis* Say. Winnipeg, Man., June 17, 1911, (Wallis).

6496b. *Oberea basalis* Lec. Aweme, Man., June 25, 1911, (E. Criddle).

6503b. *Oberea mandarina* Fab. Winnipeg, Man., June 10, 1911, (Wallis); Port Medway, N.S., July, (P. G. Bolster).

6715. *Triachus atomus* Suffr. Greenfield, N.S., July, 1910, (P. G. Bolster).

6725. *Fidia viticida* Walsh. Windsor, Ont., July 6, specimens of adults and injured foliage sent to Division the past summer. The only Ontario record I have. On May 28, 1908, Mr. J. M. Swaine found the beetle at Macdonald College, Que., and in the following year the insect was again found at the same place, in small numbers.

Rhabdopterus picipes Oliv. Treesbank, Man., July 29, 1910, (Wallis).

6782. *Prasocuris obliquata* Lec. Vernon, B.C., (Venables).

6827. *Plagiodera oviformis* Lec. Vernon, B.C., March, 1908, (Venables).

6842. *Gonioctena arctica* Mann. Rampart House, Y.T., (Nelles).

6905a. *Galeruca punctipennis* Mann. Vernon, B.C., June, 1910, (Venables).

6917. *Monoxia consputa* Lec. Vernon, B.C., (Venables).

6932. *Oedionychis vians* Ill. Port Medway, N.S., July, 1910, (P. G. Bolster).

6933. *Oedionychis lugens* Lec. Banff, Alta., May 5, 1910, (Sanson).

6945b. *Oedionychis limbalis* Melsh. Port Medway, N.S., Aug. 1912, (P. G. Bolster).

10416. *Disonycha crenicollis* Say. Banff, Alta., May 18, 1911, (Sanson).

6988. *Crepidodera subcrinita* Lec. Vernon, B.C., July, (Venables).

7027. *Phyllotreta albionica* Lec. Vernon, B.C., July, (Venables).

7032. *Mantura floridana* Cr. Port Medway, N.S., July, (Venables).

7068. *Microrhopala cyanea* Say. Aweme, Man., May 24, 1910, (Criddle).

7124. *Bruchus discoideus* Say. Treesbank, Man., July 21, 1910, (Wallis).

7661. *Carebara longula* Lec. Port Medway, N.S., July, 1910, (P. G. Bolster).

7696. *Stenotrachelus arctatus* Say. Banff, Alta., Sept. 29, 1911, (Sanson).

7717. *Salpingus virescens* Lec. Saskatoon, Sask., July 20, (Willing).

7724. *Calopus angustus* Lec. Banff, Alta., May 5, 1911, (Sanson).

7846. *Mordellistena unicolor* Lec. Banff, Alta., Aug. 13, 1909, (Sanson).

7975. *Anthicus coracinus* Lec. Port Medway, N.S., July, 1910, (P. G. Bolster).

8306. *Chætechus setiger* Horn. Port Medway, N.S., July, 1910, (P. G. Bolster).

8360. *Lepidophorus lineaticollis* Kirby. Yukon Crossing, Y.T., (Nelles).

8430. *Phytonomus comptus* Say. Lumsden, Sask., July 18. (Willing).
8436. *Lepyrus gemellus* Kirby. Banff, Alta., Aug. 5, 1911, (Sanson).
8473. *Pissodes costatus* Mann. Rampart House, Y.T., (Nelles).
8479. *Hylobius pales* Hbst. Saskatoon, Sask., June 22, (Willing).
8487. *Lixus rubellus* Rand. Vernon, B.C., Sept. (Venables).
8532. *Dorytomus brevicollis* Lec. Banff, Alta., Nov. 6, 1910, on snow, (Sanson); Saskatoon, Sask., Sept. 29, (Willing).
8630. *Anthonomus quadrigibbus* Say. Aweme, Man., May 24, 1912; June 5, 1903. (E. & N. Criddle).
* *Trypophloeus nitidus* Swaine. Weymouth, N.S., (Sanders); Can. Ent. xliv, 349.

Diptera.

(Arranged according to a catalogue of North American Diptera, by J. M. Aldrich, Smithsonian Misc. Coll. XLVI, No. 1,444. The numbers refer to the pages in the catalogue).

Considerable collecting in this order was done during 1912. The tipulids mentioned below were all determined by Dr. Deitz, and although some of the species are not what one might term rare, the definite records are valuable, as they add to the known distribution of the insects.

78. *Rhipidia maculata* Meig. Ottawa, Aug. 7, (Beaulieu); Aweme, Man., (Criddle); Winnipeg, Man., Sept., (Wallis).
78. *Dicranomyia brevivena* O. S. Winnipeg, Man., Sept., (Wallis).
79. *Dicranomyia distans* O. S. Rigaud, Que., June 25, 1906, (Beaulieu); Ameme, Man., (Criddle); Winnipeg, Man., June, (Wallis).
79. *Dicranomyia haeretica* O. S. Aweme, Man., (Criddle).
79. *Dicranomyia immodesta* O. S. Montreal, June 14, 1906; Rigaud, Que., June 25, 1906, (Beaulne); Ottawa, Aug. 29, (Beaulne); Aweme, Man., (Criddle); Winnipeg, Man., Sept. (Wallis).
79. *Dicranomyia liberta* O. S. Montreal, June 14, 1906, (Beaulieu); Ottawa, Aug. 29, Sept. 8, Oct. 12, (Beaulne); Aweme, Man., (Criddle).
79. *Dicranomyia moriodes* O. S. Aweme, Man., (Criddle).
79. *Dicranomyia pudica* O. S. Montreal, June 10, 1906, (Beaulieu).
80. *Dicranomyia venusta* Berg. Peachland, B.C., Aug., (Wallis).
80. *Limnobia cinctipes* Say. Aweme, Man., (Criddle); Husavick, Man., June, (Wallis).
80. *Limnobia immatura* O. S. Winnipeg, Man., June, (Wallis).
81. *Limnobia solitaria* O. S. Ottawa, Sept. 5, (Beaulne); Aweme, Man., (Criddle); Husavick, Man., Aug., (Wallis).
81. *Limnobia triocellata* O. S. Aweme, Man., (Criddle).
81. *Limnobia tristigma* O. S. Aweme, Man., (Criddle).
81. *Rhamphidia flavipes* Macq. Montreal, Aug. 5, 1906, (Beaulieu); Ottawa, Sept. 2, 13, (Beaulne); Husavick, Man., July, (Wallis).
* *Elliptera astigmatica* Alex. Roger's Pass, B.C., July 30, 1908, (J. C. Bradley); Psyche, xix, 164.
85. *Erioptera septemtrionalis* O. S. Montreal, June 10, 1906, (Beaulieu); Ottawa, Oct. 4, (Beaulne).

85. *Goniomyia blanda* O. S. Peachland, B.C., June, (Wallis).
89. *Epiphragma fascipennis* Say. Ottawa, July 2, (Beaulne).
89. *Limnophila adusta* O. S. Husavick, Man., July, (Wallis).
90. *Limnophila quadrata* O. S. Montreal, June 24, (Winn); Ottawa, Aug. 29, (Beaulne).
94. *Pedicia albivitta* Walk. Ottawa, Aug. 24, (Beaulne); Aweme, Man., (Criddle).
94. *Liogma nodicornis* O. S. Stoke Centre, Que., June 26, (Winn).
95. *Bittacomorpha clavipes* Fab. Montreal, Aug. 14, 1906, (Beaulieu); Aweme, Man., (Criddle).
Oropeza obscura John. Rigaud, Que., June 27, 1906, (Beaulieu); Peachland, B.C., Aug., (Wallis).
Oropeza albipes John. Montreal, June 27, 1906, (Miss Beaulieu).
97. *Xiphura fumipennis* O. S. Montreal, June 10, 1906, (Beaulieu).
97. *Pachyrhina altissima* O. S. Aweme, Man., (Criddle).
97. *Pachyrhina collaris* Say. Montreal, July 18, 1908, (Beaulieu).
97. *Pachyrhina erythrophrys* Will. Aweme, Man., (Criddle); "Br. Col.", Aug. 14, 1910 (record received from Beaulieu); Winnipeg, Man., June, (Wallis).
97. *Pachyrhina eucera* Loew. Montreal, July 18, 1906, (Beaulieu); Ottawa, Aug. 30, 1912, (Beaulne).
98. *Pachyrhina ferruginea* Fab. Ottawa, July 4, Sept. 10, Oct. 2, (Beaulne). Aweme, Man., (Criddle); Winnipeg, Man., June, (Wallis).
98. *Pachyrhina incurva* Loew. Ottawa, June 3, (Beaulne).
98. *Pachyrhina lineata* Scop. Montreal, June 17, 1906, (Beaulieu); Ottawa, Oct. 8, (Beaulne).
98. *Pachyrhina lugens* Loew. Ottawa, July 4; (Beaulne).
98. *Pachyrhina occipitalis* Loew. Aweme, Man., (Criddle); Winnipeg, Man., Sept., (Wallis).
98. *Pachyrhina sodalis* Loew. Montreal, July 21, 1906, (Beaulieu); Ottawa, Sept. 24, (Beaulne).
101. *Tipula abdominalis* Say. Ottawa, Sept., 10, (Beaulne).
101. *Tipula angustipennis* Loew. Ottawa, June 3, Oct. 8, (Beaulne); Aweme, Man., (Criddle); Winnipeg, Man., June, (Wallis).
101. *Tipula bicornis* Loew MS. Newaygo, Que., June 9, (Winn); Montreal, June 7, (Beaulieu).
101. *Tipula calva* Doane. Rigaud, Que., June 25, 1910 (Beaulieu); Ottawa, July 8, (Beaulne).
101. *Tipula cincticornis* Doane. Montreal, Aug. 21, 1906, (Beaulieu).
101. *Tipula costalis* Say. Ottawa, Sept. 3, (Beaulne).
101. *Tipula cunctans* Say. Aweme, Man., (Criddle).
102. *Tipula eluta* Loew. Ottawa, Sept. 29, (Beaulne).
102. *Tipula flavicans* Fab. Ottawa, Sept. 5, (Beaulne); Aweme, Man., (Criddle); Peachland, B.C., Aug., (Wallis).
102. *Tipula hebes* Loew. Ottawa, Aug. 30, Sept. 10, Oct. 4, (Beaulne); Aweme, Man., (Criddle).
102. *Tipula illustris* Doane. Rigaud, Que., June 25, 1906, (Beaulieu).
102. *Tipula impudica* Doane. Peachland, B.C., Aug., (Wallis).
102. *Tipula inermis* Doane. Montreal, June 17, 1906, (Beaulieu).

103. *Tipula pallida* Loew. Newaygo, Que., June 9, (Winn).

104. *Tipula serta* Loew. Ottawa, July 8, (Beaulne); Aweme, Man., (Criddle); Peachland, B.C., June, (Wallis).

104. *Tipula sulphurea* Doane. Montreal, July 18, 1908, (Beaulieu); Aweme, Man., (Criddle).

104. *Tipula trivittata* Say. Montreal, June 14, 1910, (Beaulieu); Husavick, Man., June, (Wallis).

143. *Epicypta punctum* Stan. Ottawa, reared from a myxomycete (*Reticularia lycoperdon* Fall), emerged in late autumn, (J. W. Eastham).

* *Allodia bella* Johannsen. Downie Creek, Selkirk Mt., B.C., Aug., (J. C. Bradley); Bull, 196, Maine Agri. Exp. Station, p. 319.

* *Exechia nugax* Johannsen. Rouville Co., Que.; Bull. 200, Maine Agric. Exp. Station, p. 68.

* *Exechia palmata* Johannsen. Selkirk Mts., B.C., (J. C. Bradley); Bull. 200, Maine Agric. Exp. Station, p. 71.

* *Mycetophila edentula* Johannsen. Selkirk Mts., Rogers' Pass, B.C., July, (J. C. Bradley); Bull. 200, Maine Agric. Exp. Station, p. 105.

* *Mycetophila pectita* Johannsen. Selkirk Mts., B.C., (J. C. Bradley); Bull. 200, Maine Agric. Exp. Station, p. 101.

* *Dynatosoma placida* Johannsen. Kearney, Ont., July, (M. C. Van Duzee); Bull. 200, Maine Agric. Exp. Station, p. 77.

* *Sciara abdita* Johannsen. Kearney, Ont., (M. C. Van Duzee); Bull. 200, Maine Agric. Exp. Station, p. 125.

* *Sciara habilis* Johannsen. Kearney, Ont.; Bull. 200, Maine Agric. Exp. Station, p. 126.

* *Nemotelus bonnarius* John. Fairwell Creek, South Saskatchewan, Aug., 1907, (Mrs. V. A. Armstrong); Psyche, Vol. XIX, p. 4.

195. *Chrysops mœrens* Walk. Husavick, Man., July 5, 1910, (Wallis).

199. *Haematopota americana* O. S. Husavick, Man., July 7, 1910, (Wallis).

200. *Tabanus affinis* Kirby. 18 miles south of Rampart House, Y.T., (Nelles).

203. *Tabanus epistates* O.S. Bird's Hill, Man., June 5, 1909, (Wallis).

204. *Tabanus illotus* O. S. Husavick, Man., July 4, 1910 (Wallis).

204. *Tabanus lineola* Fab. Winnipeg, Man., June 23, 1910, (Wallis).

207. *Tabanus septentrionalis* Loew. Husavick, Man., Aug. 18, 1910, (Wallis).

231. *Anthrax gracilis* Macq. Lumsden, Sask., July 18, 1910, (Willing).

232. *Anthrax molitor* Loew. Phippen, Sask., July 16, 1909, (Willing).

237. *Anastoechus nitidulus* Fab. Moose Jaw, Sask., Aug. 12, 1909, (Willing).

248. *Thereva duplicis* Coq. Regina, Sask., July 25, 1907, (Willing).

* *Thereva ustulata* Kröber. "Laval Co., Que."; Stettiner Entomologische Zeitung, 1912, p. 265.

248. *Thereva nigra* Say. Battleford, Sask., July 1, 1907, (Willing).

256. *Stenopogon morosus* Loew. Saskatoon, Sask., Aug. 3, 1907, (Willing).

293. *Sympycnus lineatus* Loew. Ottawa, July 2, (Beaulieu).

294. *Neurigona lateralis* Say. Ottawa, July 2, (Beaulieu).

299. *Dolichopos albicoxa* Aldrich. Ottawa, July 2, (Beaulieu).

300. *Dolichopos brevimanus* Loew. Ottawa, July 2, (Beaulieu).

300. *Dolichopos calcaratus* Aldrich. Ottawa, July 2, (Beaulieu).

301. *Dolichopos flagellitenens* Wheeler. Ottawa, July 2, (Beaulieu).

302. *Dolichopos lobatus* Loew. Ottawa, July 2, (Beaulieu).

303. *Dolichopos palaestricus* Loew. Ottawa, July 2, (Beaulieu).

305. *Gymnopternus barbatulus* Loew. Ottawa, July 2, (Beaulieu).

305. *Gymnopternus difficilis* Loew. Ottawa, July 2, (Beaulieu).

309. *Pelastoneurus vagans* Loew. Ottawa, July 2, (Beaulieu).

* *Pinunculus caudelli* Malloch. Kaslo, B.C., July 16, 1903, (A. N. Caudell); Proc. U. S. N. M., Vol. 43, p. 299.

* *Pipunculus exilis* Malloch. Medicine Hat, Alta., (Malloch); Proc. U. S. N. M., Vol. 43, p. 295.

* *Pipunculus inconspicuus* Malloch. Medicine Hat, Alta., Oct., 1911, (Malloch), Proc. U. S. N. M., Vol. 43, p. 296.

* *Pipunculus occidentalis* Malloch. Medicine Hat, Alta., Oct., 1911, (Malloch); Proc. U. S. N. M., Vol. 43, p. 292.

* *Pipunculus stigmatica* Malloch. Kaslo, B.C., July 16, 1903, (A. N. Caudell); Proc. U. S. N. M., Vol. 43, p. 294.

* *Pipunculus trochanteratus* Malloch. Kaslo, B. C., (R. P. Currie ; Proc. U. S. N. M., Vol. 43, p. 298.

* *Paraspiniphora trispinosa* Malloch. Kaslo, B.C., June 22, 1903, (R. P. Currie); Proc. U. S. N. M., Vol. 43, p. 427.

* *Aphixæta conglomerata* Malloch. Kaslo, B.C., (A. N. Caudell); Proc. U. S. N. M., Vol. 43, p. 446.

* *Aphiochæta ursina* Malloch. London Hill Mine, Bear Lake, B.C., July 29, 1903, altitude 7,000 feet, (R. P. Currie); Proc. U. S. N. M., Vol. 43, p. 476.

* *Aphiochæta monticola* Malloch. Kokanee Mountains, B.C., 8,000 feet, Aug. 11, 1903, (R. P. Currie); Proc. U. S. N. M., Vol. 43, p. 479.

* *Apiochæta dubitata* Malloch. Kokanee Mountains, B.C., 8,000 feet, Aug. 11, 1903, (R. P. Currie); Proc. U. S. N. M., Vol. 43, p. 481.

* *Aphiochæta atomella* Malloch. Oxbow, Sask., (F. Knab); Proc. U.S.N.M., Vol. 43, p. 481.

* *Aphiochæta borealis* Malloch. Kaslo, B.C., July 8, 1903, (R. P. Currie); Proc. U. S. N. M., Vol. 43, p. 489.

* *Aphiochæta perplexa* Malloch. London Hill Mine, Bear Lake, Kaslo, B.C., 7,000 feet, July 21, 1903, (R. P. Currie).

* *Aphiochæta dyari* Malloch. Kaslo, B.C., (H. G. Dyar); Proc. U. S. N. M., Vol. 43, p. 493.

* *Aphiochæta fuscopedunculata* Malloch. Kaslo, B.C., June 25, 1903, (R. P. Currie); Proc. U. S. N. M., Vol. 43, p. 499.

* *Plastophora curriei* Malloch. Kaslo, B.C., (R. P. Currie); Proc. U. S. N. M., Vol. 43, p. 501.

349. *Chrysogaster pulchella* Will. Ottawa, July 2, (Beaulieu).

* *Helophilus willingii* Smith. Regina, Sask., June 19, 1905, male; July 8, 1906, female; (Willing); Proc. Ent. Soc. Wash., Vol. XIV, p. 119.

350. *Pipiza nigripilosa* Will. Ottawa, Aug. 18, (Beaulne).

359. *Platychirus chætopodus* Will. Ottawa, Aug. 16, Sept. 8, (Beaulne).

368. *Syrphus xanthostoma* Will. Ottawa, Aug. 20, (Beaulne).

423. *Alophora æneoventris* Will. Ottawa, Sept. 17, 1911, (Tothill).

428. *Eulasiona comstocki* Town. Chelsea, Que., May 30, 1908, (Fletcher).

445. *Plagia americana* Van der Wulp. Ottawa, June 10, 1901, (Gibson).
Varichaeta aldrichi Town. Ottawa, (Gibson).

456. *Exorista cheloniæ* Rond. Chelsea, Que., (Tothill).

457. *Exorista endryæ* Town. Ottawa, Aug. 27, 1906, (Fletcher).
457. *Exorista futilis* O. S. Ottawa, May 21, (Fletcher).
458. *Exorista nigripalpis* Town. Ottawa, Sept., 11, 1908, (Fletcher); Chicoutimi, Que., Maniwaki, Que., specimens emerged at Ottawa in June, 1911, in Div. of Ent.
458. *Exorista pyste* Walk. Chicoutimi, Que., specimens emerged at Ottawa, July 3, 1911, in Div. of Ent.
464. *Sturmia albifrons* Walk. Ottawa, (Fletcher).
464. *Sturmia iniquinata* Van der Wulp. Ottawa, May 22, 1900, (Gibson); June 11, 1900, (Young).
466 *Masicera eufitchiæ* Town. Ottawa, May 18, 1900, (Gibson).
470. *Tachinomyia robusta* Town. Ottawa, June 22, 1908, (J. A. Letourneau); May 22, 1900, (Gibson).
472. *Blepharipeza adusta* Loew. Ottawa, June 16, 1908, (Gibson).
472. *Blepharipeza leucophrys* Wied. Meach Lake, Que., July 21, 1907; (Fletcher).
* *Winthemia fumiferanæ* Tothill. Maniwaki, Que., Duncan's, B.C., reared in Div. of Ent., Ottawa; Can. Ent. Vol. XLIV, p. 3.
473. *Winthemia quadripustulata* Fab. Ottawa, June 26, 1904, (Metcalfe); May 5, 1901, (Fletcher).
475. *Phorichaeta sequax* Will. Ottawa, June 10, 1903, (Gibson).
576. *Borborus geniculatus* Macq. Montreal, Oct. 1, 1905, (Beaulieu).
640. *Stegana coleoptrata* Scop. Montreal, June 14, 1906, (Beaulieu).
655. *Ornithoica confluens* Say. Ottawa, from English Sparrow, Sept. 27, 1909, (Hewitt).

HYMENOPTERA.

Little collecting has been done in this order during the past season, and only small collections obtained previously have been worked up. Consequently few records are included this year. Mr. F. W. L. Sladen, Assistant Entomologist for Apiculture, Div. of Entomology, Exp. Farm, is making a special study of the aculeate hymenoptera and would be glad to receive specimens from any locality.

Myrmica brevinodes Em., var *whymperi* Forel. Banff, Alta., June 18, 1908, (Sanson). Recorded from British Columbia.
Myrmica scabrinodis Nyl., var. *glacialis* Forel. Banff, Alta, May 21, 1908, (Sanson). Recorded from Brit. Col.
Lasius niger L., var. *americanus* Em. Banff, Alta., May 28, 1908, (Sanson).
Lasius umbratus mixtus Nyl. var. *aphidicola* Walsh. Banff, Alta., May 15, 1911, (Sanson).
Formica rufa L. subsp. *obscuripes* Forel. Banff, Alta., June 16, 1908, (Sanson).
Formica fusca L. var. *argentata* Wheeler. Banff, Alta., May 2, 1908, (Sanson).
Formica fusca L. var. *neorufibarbis* Em. Banff, Alta., May 21, 1908, (Sanson).
Camponotus herculeanus L. var. *whymperi* Forel. Banff, Alta., June 8, 1908, (Sanson).

* *Cephaleia criddlei* MacGillivray. Aweme, Man.; Can. Ent. XLIV, 297.

* *Pamphilius nigritibialis* Rohwer. Oxbow, Sask., June 15, 19, 1907, (F. Knab); Proc. U. S. N. M., Vol. 43, 206.

* *Macrophya zabriskiei* Rohwer. "One male from Canada, C. F. Baker collection"; Proc. U. S. N. M., Vol. 43, 218.

* *Tenthredo anomocerus* Rohwer. Banff, Alta., (Sanson); Proc. U. S. N. M., Vol. 43, 223.

* *Monophadnus truncatus* Rohwer. Oxbow, Sask, June 1, 1907, (F. Knab); Proc. U. S. N. M., Vol. 43, 232.

* *Pracharactus nigrisomus* Rohwer. Oxbow, Sask., June 21, 1907, (F. Knab); Proc. U. S. N. M., Vol. 43, 232.

* *Euura serissimae* Rohwer. Toronto, Ont., (A. Cosens); Proc. U. S. N. M., Vol. 43, 240.

* *Euura nigrella* Rohwer. Fort Erie, Ont., April 7, 1910, (M.C. VanDuzee); Proc. U. S. N. M., Vol. 43, 241.

* *Pontania crassicornis* Rohwer. Toronto, Ont., (A. Cosens); Proc. U. S. N. M., Vol. 43, 242.

* *Pontania lucidæ* Rohwer. Toronto, Ont., (A. Cosens); Proc. U. S. N. M., Vol. 43, 242.

* *Amauronematus knabi* Rohwer. Oxbow, Sask., June 15, 19, 1907, (F. Knab). Proc. U. S. N. M., Vol. 43, 245.

Sirex abdominalis Harris. Banff, Alta., summit of Sulphur Mt., Sept. 9, 1907, (Sanson).

Sirex bizomatus Steph. Banff, Alta., Aug. 23, 1911, (Sanson).

Sirex flavicornis Fabr. Banff, Alta., Aug. 29, 1909, (Sanson).

* *Apanteles fumiferanæ* Viereck. Reared at Ottawa from Spruce Budworm material received from Montcalm and Chicoutimi, Que., issued June 18, 20, 1911; Proc. U. S. N. M., Vol. 42, 139.

* *Meteoris trachynotus* Viereck. Maniwaki, Que., issued June 20, July 3, 1911; Proc. U. S. N. M., Vol. 42, 142.

* *Conoblasta fumiferanæ* Viereck. Maniwaki, Que., Duncan's and Esquimault, B.C.; Proc. U. S. N. M., Vol. 42, 148.

* *Epiurus innominatus* Viereck. Esquimault, B.C.; Proc. U. S. N. M., Vol., 42, 149.

* *Phygadeuon plesius* Viereck. Maniwaki, Que.; Proc. U. S. N. M., Vol. 42, 148.

* *Mesochorus diversicolor* Viereck. Duncan's, B.C., issued July 18, 25, 1911; Proc. U. S. N. M., Vol. 42, 149.

Amblyteles fraternus Cress. St. Therese, Que., (Mignault).

Trogus canadensis Prov. St. Therese, Que., (Mignault).

* *Polynema regina* Girault. Vancouver, B.C.; Proc. Ent. Soc., Wash., Vol. xiv., 24.

* *Rhopoideus fuscus* Girault. Maniwaki, Que., Montcalm, Que., St. Gabriel de Brandon, Que., reared at Ottawa; Can. Ent., xliv., 7.

* *Dasymutilla coloradella kamloopsensis* Rohwer. Kamloops, B.C., (Wickham); Proc. U. S. N. M., Vol. 41, 459.

Ammophila gryphus Smith. St. Therese, Que., (Mignault).

* *Chelynia ricardonis* Cockerell. Vernon, B.C., June 19, 1902, (Miss Ricardo); Can. Ent., xliv., 293.

* *Megachile vernonensis.* Cockerell. Vernon, B.C., July 7, 1902, (Miss Richardo); Can. Ent., XLIV, 354.
* *Osmia novaescotiae* Cockerell. "Nova Scotia (Ent. Club)"; Can. Ent. XLIV, 356.
* *Osmia subarctica* Cockerell. "Hudson's Bay": Can. Ent. XLIV, 357.
* *Osmia tersula* Cockerell. "Hudson's Bay"; Can. Ent. XLIV, 358.
* *Philcremulus mallochi* Crawford. Medicine Hat, Alta.; Can. Ent. XLIV, 360.
* *Perdita canadensis* Crawford. Medicine Hat, Alta., Can. Ent., XLIV, 360.

HEMIPTERA.

During the past year several small collections of hemiptera have been determined by our good friend Mr. E. P. Van Duzee. In July last Mr. Van Duzee visited Canada, and while at Ottawa, Montreal, and other points collected some interesting species (See *The Ottawa Naturalist,* Aug.—Sept. issue, 1912). While in Canada he also visited Quebec City, where he made a study of the Provancher collection. The results of this study are given in *The Canadian Entomologist,* Nov., 1912.

Ceresa brevis Walk. Banff, Alta., Sept. 8, 1909, (Sanson).
Thelia bimaculata Fabr. St. Ives, Ont., (H. F. Hudson).
Carynota stupida Walk. "Rat Portage," Ont., (now called Kenora); no collector's name on label.
Glossonatus godingi Van D. Winnipeg, Man., June 24, 1911, (Wallis).
Telamona pyramidata Uhler. Regina, Sask., Aug. 10.
Platycotis nigromaculata Prov. (var. of *sagittata* Germ.). Victoria, B.C.
Elidiptera septentrionalis Prov. Aweme, Man., (Criddle).
* *Lamenia maculata* Van D. Trenton, Ont., Aug. 17, 1911, (Evans); Bull. Buffalo Soc. Nat. Sciences, Vol. x., 503, June, 1912.
Stenocranus felti Van D. Winnipeg, Man., May 26, 1909, (Wallis).
Aphrophora angulata Ball. Victoria, B.C., (Hanham).
Aphrophora permutata Uhler. Duncan's, B.C., July 4, 1911, (Hanham),
Gypona albosignata Uhler. Winnipeg, Man., June 30, 1911, (Wallis).
Pagaronia 13-punctata Ball. Victoria, B.C., (Hanham).
Oncopsis sobrinus Walk. Kaslo, B.C. , (Cockle).
Dicraneura carneola Stal. Ottawa, (Metcalfe).
Typhlocyba comes var. *infuscata* Gill. Ottawa, (Metcalfe).
Typhlocyba lethierryi Edw. Ottawa, (Metcalfe).
* *Aphalara fascipennis* Patch. Hull, (Beaver Meadow), Que., June 7, 27, 1903, (Metcalfe); Maine Agric. Exp. Station, Bull. 202, 217, issued Sept. 20, 1912.
* *Psylla breviata* Patch. Ottawa, June 14, 1903, (Metcalfe); Maine Agric. Exp. Station Bull. 202, 220, issued Sept. 20, 1912.
* *Trioza aylmeriæ* Patch. Aylmer, Que., May 20, 1906, (Metcalfe); Maine Agric. Exp. Station Bull. 202, 225, issued Sept. 20, 1912.
* *Trioza forcipula* Patch. Hull, Que., May 17, July 26, 1903; Ottawa, May 29, June 5, 1904, (Metcalfe): Maine Agric. Exp. Station, Bull. 202, 227, issued Sept. 20, 1912.

* *Trioza stylifera* Patch. Brockville, Ont., Oct. 25, 29; Nov. 1, 15, 1903, (Metcalfe); Maine Agric. Exp. Station, Bull. 202, 229; issued Sept. 20, 1912.

* *Neotriozella ottawanensis* Patch. Ottawa, June 1, 1904, (Metcalfe); Maine Agric. Exp. Station, Bull. 202, 231; issued Sept. 20, 1912.

Pentatoma ligata Say. Banff, Alta., (Sanson).

Pentatoma uhleri Stal. Kaslo, B.C., Aug. 28, 1905, (Cockle).

Aradus debilis Uhler. British Columbia, March 10, (G. W. Taylor).

Aneuris septentrionalis Walk. Nepigon, Ont., (J. Fletcher).

Nysius minutus Uhler. Saskatoon, Sask., July 22, 1907, (J. Fletcher).

Trapezonotus agrestis Fallen. Winnipeg, Man., June 6, 1911, (Wallis).

Tollius setosus Van D. Ruby, Sask., (J. Fletcher).

Stictopleurus crassicornis Linn. Nepigon, Ont., June 25, 1895, (J. Fletcher).

Liorhyssus viridicatus Uhler. Saskatoon, Sask., Aug. 23, 1907, (J. Fletcher).

Corythuca incurva Uhler. Aweme, Man., June 5, 1904, (Criddle).

Tingis clavata Stal. Winnipeg, Man. June 30, 1911, (Wallis).

Rasahus thoracicus Stal. Victoria, B.C., May 1, 1905, (Hanham).

Ranatra americana Montd. Selkirk, Man., Sept. 23, 1911, (Wallis).

Macrotylus tristis Uhler. Ottawa, July 25, 1908, (Gibson).

Diaphnidia capitata, Van D. Ottawa, on hazel nut, July 26, 1903; Aug. 2, 1904, (Metcalfe).

Trigonotylus tarsalis Reut. Winnipeg, Man., June 24, 1911, (Wallis).

Adelphacoris superbus Uhler. Ruby, Sask., July 19, 1907, (J. Fletcher).

* *Tropidosteptes canadensis* Van D. Ottawa, on white ash, Aug. 1, 1904, (Metcalfe); Bull. Buffalo Soc. Nat. Sciences, Vol. x., 486, June, 1912.

* *Criocoris canadensis* Van D. North Hatley, Como and Lachine, Que., July and August, (G. A. Moore); Bull. Buffalo Soc. Nat. Sciences, Vol. x., 511, June, 1912. Mr. Metcalfe has also taken the species at Ottawa, June 27, 1903, and at Hull, Que., June 24, 1911.

Irbisia brachycerus Uhler. Massett, Queen Charlotte Islands, (Keen).

Irbisia sericans Stal. Massett, Q. C. I., June 15, 1892, (Keen).

Camptobrochis validus Reut. Victoria, B.C., (G. W. Taylor).

Orectoderes obliquus Uhler. Winnipeg, Man., June 24, 1911, (Wallis); Calgary, Alta., (J. Fletcher).

Horcias dislocatus var. *nigrita* Reut. Winnipeg, Man., June 30, 1911.

Salda explanata Uhler. Little Current River, Hudson Bay Slope, July 11, 1903, (W. J. Wilson).

Salda coriacea Uhler. Nepigon, Ont., July 14, 1892, (J. Fletcher).

NEUROPTEROID INSECTS (EXCEPT ODONATA).

(Arranged according to a catalogue of the Neuropteroid Insects (except Odonata) of the United States, by Nathan Banks; American Entomological Society, 1907. The numbers refer to the pages of the catalogue.)

ARCHIPTERA.

10. *Acroneura abnormis* Newm. Banff, Alta., Sanson.
11. *Isogenus frontalis* Newm. Rosebank, Ont., (P. Halm).

12. *Perla lycorias* Newm. Winnipeg, Man., July, 1909, (Wallis).
13. *Alloperla coloradensis* Banks. Banff, Alta., (Sanson).
13. *Alloperla imbecilla* Say. Banff, Alta., July 21, 1906, (Sanson).
14. *Nemoura perfecta* Walk. Toronto, Ont., (Walker).
16. *Leptophlebia cupida* Say. Go Home Bay, Georgian Bay, Ont., (W. A. Clemens).
17. *Leptophlebia nebulosa* Walk. Go Home Bay, Georgian Bay, Ont., (W. A. Clemens).
18. *Bactis propinquus* Walsh. Go Home Bay, Georgian Bay, and Toronto, Ont., (W. A. Clemens).
18. *Choeon dubium* Walsh. Go Home Bay, Georgian Bay, Ont., (W. A. Clemens).
19. *Siphlonurus alternatus* Say. Toronto, Ont., (Walker).
19. *Siphlonurus siccus* Walsh. Go Home River, Ont., (W. A. Clemens).
20. *Heptagenia canadensis* Walk. Go Home Bay, Georgian Bay, Ont., (W. A. Clemens).
20. *Heptagenia flavescens* Walsh. Winnipeg, Man., June 13, 1911, (Wallis); Go Home Bay, Ont., (W. A. Clemens).
20. *Heptagenia frontalis* Banks. Go Home Bay, Georgian Bay, Ont., (W. A. Clemens).
20. *Heptagenia tripunctata* Banks. Go Home Bay, Georgian Bay, Ont., (W. A. Clemens).
20. *Ecdyurus maculipennis* Walsh. Go Home Bay, Georgian Bay, Ont., (W. A. Clemens).

NEUROPTERA.

23. *Mantispa brunnea* Say. Thousand Islands, Ont., (Miss Coleman).
24. *Hemerobius canadensis* Banks. Banff, Alta., (Sanson).
24. *Hemerobius humuli* Linn. Winnipeg, May 13, 1911, (Wallis); Banff, Alta., Aug. 29, 1910, (Sanson); Toronto, Ont., (Walker).
24. *Hemerobius moestus* Banks. Sulphur Mt., Banff, Alta., on snow, Nov. 15, 1909, (Sanson).
24. *Hemerobius stigmaterus* Fitch. Toronto, Ont., (Walker).
25. *Boriomyia longifrons* Walk. Winnipeg, Man., July, 1909, (Wallis); Banff, Alta., on snow, Nov. 19, (Sanson).
25. *Boriomyia disjuncta* Banks. Winnipeg, Man., Sept. 12, 1911, (Wallis); Sulphur Mt., Banff, Alta., Aug. 17, 1908, (Sanson).
27. *Chrysopa chlorophana* Burm. Banff, Alta., (Sanson).
28. *Chrysopa oculata* Say. Banff, Alta., June 2, 1909, (Sanson).
28. *Chrysopa rufilabris* Burm. Toronto, Ont., (Walker).
28. *Chrysopa ypsilon* Fitch. Toronto, Ont., (Walker).

TRICOPTERA.

35. *Neuronia angustipennis* Hagen. Winnipeg, Man., June 24, 1910, (Wallis).
35. *Neuronia concatenata* Walk. Rosebank, Ont., (Hahn).
35. *Neuronia postica* Walk. Montreal, (Winn); Levis, Que., (Fyles).
35. *Neuronia stygipes* Hag. St. Hilaire, Que., May 24, 1910, (Winn).

36. *Limnephilus coloradensis* Banks. Winnipeg, Man., May 23, 1911, (Wallis).
36. *Limnephilus combinatus* Walk. Banff, Alta., Aug. 23, 29, 1911, (Sanson).
36. *Limnephilus luteolus* Banks. Banff, Alta., Aug. 10, (Sanson).
37. *Limnephilus submonilifer* Walk. Toronto, Ont., (Walker).
37. *Anabolia bimaculata* Walk. Banff, Alta., Aug. 5, 1908, July 28, 1911, (Sanson).
38. *Glyphopsyche irrorata* Fabr. Banff, Alta.,(Sanson).
38. *Pycnopsyche guttifer* Walk. Rosebank, Ont., (Hahn).
40. *Chilostigma alascensis* Banks. Banff, Alta., Oct. 14, 1910, (Sanson).
45. *Leptocerus ancylus* Vorhies. Winnipeg, Man., June 29, 1911, (Wallis).
45. *Triœnodes grisea* Banks. Stony Mt., Man., Sept. 16, 1911, (Wallis).
47. *Hydropsyche scalaris* Hagen. Toronto, Ont., (Walker).

ODONATA.

* *Coenagrion angulatum* Walker. Carduff, Sask., July 16, 1900, (Willing); Aweme, Man.. July 4, 1905, (Criddle); Winnipeg Beach, Lake Winnipeg, June 19, 1909, (Wallis); Prince Albert, Sask., June 18, 1905, (Willing); Can. Ent., xliv., 259.

Sympetrum scoticum Don. Giant's Tomb Island, Georgian Bay, Ont., July 14, 1912, (Walker).

Sympetrum corruptum Hagen. Giant's Tomb Island, Georgian Bay, Ont., July 14, 1912, (Walker).

Erythrodiplax berenice Dru. East Bolton. Que., July 6, 1911, (Winn).

ARANEIDA.

(Arranged according to Banks' Catalogue of Nearctic Spiders, U. S. N. M., Bulletin 72. The numbers refer to the pages in the catalogue.)

In *The Ottawa Naturalist*, Dec., 1895, a list of 100 species of spiders, occurring in Canada, determined by J. H. Emerton, appears, and in the same publication for Jan., 1896, J. B. Tyrrell adds records of the further distribution of 11 species included in above list. W. H. Harrington contributed, also in *The Ottawa Naturalist*, for April, 1896, and Jan., 1897, lists of Ottawa spiders, enumerating in all 76 species. Since the short lists which I included in the Entomological Records for 1908 and 1909; Dr. Banks has determined several collections of Canadian spiders, and the records mentioned below not only add considerably to our list, but extend our knowledge of the distribution of species mentioned in the papers above referred to. Those now added from Ottawa are not included in Harrington's lists.

7. *Zelotes atra* Hentz. Chelsea, Que., (Gibson); La Siene River, District of Rainy River, Ont., June, (W. McInnes).
8. *Herpyllus ecclesiasticus* Hentz. Winnipeg, Man., April 13, 1911, (Wallis).
8. *Pœcilochroa montana* Emerton. Winnipeg, Man., July 5, 1910, (Wallis).
9. *Gnaphosa gigantea* Keys. Husavick, Man., Aug. 29, 1910, (Wallis).
11. *Castianeira longipalpis* Hentz. Stony Mountain, Man., Aug. 10, 1910, (Wallis).
14. *Clubiona tibialis* Emerton. Treesbank, Man., July 17, 1910, (Wallis).
15. *Cœlotes calcaratus* Keys. Ottawa, April 20, (Gibson).

16. *Cybæus reticulatus* Simon. Mt. Ebbe, Pointe Warde, June 30, (collector unknown).
16. *Cybæus recticulatus* Simon. Metlakatla, B.C., (Keen).
16. *Agelena nævia* Walck. Stony Mountain, Man., Aug. 15, 1910, (Wallis).
16. *Tegenaria derhami* Scop. Ottawa, April 20, (Gibson); Winnipeg, Man., Oct. 5, 1911, (Wallis).
18. *Amaurobius bennetti* Blackwall. La Seine River, District of Rainy River, Ont., Juné, (W. McInnes).
19. *Amaurobius pictus* Simon. Metlakatla, B.C., (Keen); Inverness, B.C., July, (Keen); Mt. Ebbe Port Warde, June 30, (collector unknown); Bradfield Inlet and North River, May, (J. A. Cadenhead).
20. *Theridium sexpunctatum* Emerton. Metlakatla, B.C., (Keen).
20. *Theridium tepidariorum* Koch. Ottawa, Dec. 23, 1910, in a greenhouse, (Beaûlne).
21. *Lithyphantes corollatus* Linn. Husavick, Man., Aug. 15, (Wallis).
21. *Steatoda borealis* Hentz. Husavick, Man., Aug. 15, (Wallis); Ottawa, May, 1907, (Gibson).
30. *Gongylidium perplexa* Keys. Metlakatla, B.C., (Keen).
32. *Labulla altioculata* Keys. Bradfield Inlet and North River, end May, (J. A. Cadenhead); Metlakatla, B.C., (Keen); Inverness, B.C., July, (Keen).
33. *Linyphia phrygiana* Koch. Treesbank, Man., July 28, 1910, (Wallis).
33. *Linyphia pusilla* Sundvall. Inverness, B.C., July, (Keen).
33. *Linyphia reducta* Keys. Metlakatla, B.C., (Keen).
33. *Linyphia rubrofasciata* Keys. Inverness, B.C., (Keen).
37. *Eugnatha straminea* Emerton. Winnipeg, Man., June 24, 1911, (Wallis).
37. *Tetragnatha extensa* Linn. Husavick, Man., July 11, 1910, (Wallis); Inverness, B.C., July, (Keen); Metlakatla, B.C., (Keen); Bradfield Inlet, Kahpto Range, 2.350 altitude, July 10, 1894, (J. A. Cadenhead); Pt. Warde, Mt. Ebbe, June 30 (J. A. Cadenhead): La Seine River, Lac des Mille Lacs, Ont., July, (W. McInnes).
37. *Tetragnatha laboriosa* Hentz. La Seine River, Lac des Mille Lacs, Ont., July, (W. McInnes); Treesbank, Man., July 17, 1910, (Wallis).
38. *Larinia borealis* Banks. Husavick, Man., Aug. 15, 1910, (Wallis).
39. *Cyclosa conica* Pallas. Treesbank, Man., July 17, 1910, (Wallis); La Seine River, Rainy River District, Ont., June 30, (W. McInnes).
39. *Zilla californica* Banks. Metlakatla, B.C., (Keen).
41. *Epeira californiensis* Keys. Metlakatla, B.C., (Keen).
42. *Epeira domiciliorum* Hentz. Husavick, Man., July 8, 1910, (Wallis).
43. *Epeira ocellata* Clerck. Bradfield Inlet and North River, end May, 1894, (J. A. Cadenhead); Metlakatla, B.C., (Keen); Husavick, Man., July 7, 1910, (Wallis).
44. *Epeira sericata* Clerck. Husavick, Man., July 2, 1910, (Wallis).
44. *Epeira thaddeus* Hentz. Treesbank, Man., July 17, 1910, (Wallis).
44. *Epeira trofolium* Hentz. Metlakatla, B.C., (Keen).
48. *Xysticus elegans* Keys. Treesbank, Man., July 17, 1910, (Wallis).
48. *Xysticus formosa* Banks. La Seine River, Lac des Mille Lacs, Ont., July, (W. McInnes).
48. *Xysticus gramineus* Emerton. Husavick, Man., July 5, 1910, (Wallis).
48. *Xysticus gulosus* Keys. Stony Mountain, Man., Aug. 10, 1910, (Wallis).

49. *Coriarachne versicolor* Keys. Winnipeg, Man., April 13, 1911, (Wallis).
50. *Misumena vatia* Clerck. Husavick, Man., July 3, 1910, (Wallis); Metlakatla, B.C., (Keen); Banff, Alta., (Sanson).
50. *Misumessus asperatus* Hentz. Winnipeg, Man., June 17, 1911, (Wallis).
51. *Thanatus lycosoides* Emerton. Winnipeg, Man., May 17, 1911, (Wallis).
51. *Tibellus oblongus* Walck. Husavick, Man., July 5, 1910, (Wallis).
52. *Philodromus inquisitor* Thorell. Husavick, Man., July 7, 1910, (Wallis).
52. *Philodromus pernix* Blackwall. Husavick, Man., Aug. 13, 1910, (Wallis).
52. *Philodromus rufus* Walck. La Seine River, Lac des Mille Lacs, Ont., July, W. McInnes).
53. *Dolomedes fontanus* Emerton. La Seine River, Rainy River District, Ont., June 30, 1890, (W. McInnes).
53. *Dolomedes sexpunctatus* Hentz. Husavick, Man., July 8, 1910, (Wallis).
54. *Pisaurina undata* Hentz. Winnipeg, Man., Sept. 10, 1910, (Wallis).
55. *Lycosa avida* Walck. Treesbank, Man., Aug. 2, 1910, (Wallis).
56. *Lycosa frondicola* Emerton. Treesbank, Man., July 28, 1910, (Wallis).
57. *Lycosa pratensis* Emerton. Husavick, Man., Aug. 29, 1910, (Wallis); La Seine River, Lac des Mille Lacs, Ont., July, (W. McInnis).
58. *Pardosa grœnlandica* Thorell. Nashvack, Labrador, Aug. 31, 1903, (A. Halkett); Fullerton, Hudson Bay, July, 1904, (A. Halkett); Winnipeg, Man., June 3, 1911, (Wallis).
59. *Pardosa lapidicina* Emerton. Husavick, Man., Aug. 29, 1910, (Wallis).
59. *Pardosa modica* Blackwall. Metlakatla, B.C., (Keen); Husavick, Man., July 8, 1910, (Wallis).
60. *Pardosa xerampelina* Keys. Husavick, Aug. 20, 1910, (Wallis).
61. *Trochosa rubicunda* Keys. Treesbank, Man., July 25, 1910, (Wallis).
61. *Pirata insularis* Emerton. Winnipeg, Man., June 24, 1911, (Wallis).
63. *Phidippus electus* Koch. Chelsea, Que., May 30, 1907, (Gibson).
66. *Dendryphantes octavus* Hentz. Winnipeg, Man., May 17, 1911, (Wallis).
68. *Pellenes falcata* Clerck. Treesbank, Man., July 23, 1910, (Wallis).
71. *Tutelina similis* Banks. Winnipeg, Man., June 17, 1910, (Wallis).

ACARINA.

* *Macrocheles canadensis* Banks. Ottawa, from a guinea pig, (Hewitt); Proc. Ent. Soc., Wash., Vol. XIV., 98.

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ANNUAL REPORT

OF THE

Bee-Keepers' Association

OF THE

Province of Ontario

1912

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1913.

Printed by
WILLIAM BRIGGS
29-37 Richmond Street West
TORONTO

To His Honour SIR JOHN MORISON GIBSON, Knight Commander of the Most Distinguished Order of St. Michael and St. George, a Colonel in the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of Your Honour, the Report of the Ontario Bee-keepers' Association for 1912.

Respectfully submitted,

JAMES S. DUFF,

Minister of Agriculture.

Toronto, 1913.

Ontario Bee-Keepers' Association

Officers for 1913.

President—D. Nolan, Newton Robinson.
1st Vice-President—J. W. Byer, Mount Joy.
2nd Vice-President—Miss E. Robson, Iderton.
Secretary-Treasurer—Morley Pettit, O.A.C., Guelph.

Directors—District No. 1, R. E. Harkness, Irena; District No. 2, A. McTavish, Carleton Place; District No. 3, M. B. Holmes, Athens; District No. 4, R. Lowey, Woodrows; District No. 5, Jas. Storer, Lindsay; District No. 6, J. L. Byer, Mt. Joy; District No. 7, F. W. Krouse, Guelph; District No. 8, Jas. Armstrong, Cheapside; District No. 9, Alex. Taylor, Paris; District No. 10, J. Haberer, Zurich; District No. 11, Miss E. Robson, Ilderton; District No. 12, Denis Nolan, Newton Robinson; District No. 13, M. Pettit, Guelph.

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Revising Committee—Mr. Sibbald, Mr. Pettit.
Honey Crop Committee—Mr. Couse, Mr. Craig, Mr. Sibbald.
Representatives to Horticultural Exhibition—Mr. Nolan, Mr. Couse, Mr. Grainger, Mr. Sibbald, and the Secretary.
Transportation Committee—J. D. Evans, the President and the Secretary.

Representatives to Fair Boards:

Representative for Toronto Exhibition—J. D. Evans, Islington.
Representative for Ottawa Exhibition—W. J. Brown, Chard.
Representative for London Exhibition—E. T. Bainard, Lambeth.

Treasurer's Report

Receipts.		Expenditures.	
Balance on hand	$189 15	Grants to Associations	$148 60
Membership fees	327 40	Expenses—Convention	214 60
Affiliated Societies' dues	50 00	Periodicals	238 25
Entry fees, Horticultural Exhibition	2 80	Printing	25 75
Grant from Legislature	500 00	Committees	22 65
		Revising report	7 00
		Show	16 75
		Incidentals	11 19
		Balance on hand	384 56
	$1,069 35		$1,069 35

Audited and found correct
this 12th day of November, 1912.
D. F. Cashman,
Auditor.

Denis Nolan,
President.
P. W. Hodgetts,
Treasurer.

Ontario Bee-keepers' Association.

The annual meeting of the Ontario Bee-keepers' Association was held in the County Council Chamber, in the City of Toronto, on Wednesday, Thursday and Friday, November 13th, 14th, and 15th, 1912.

At two o'clock p.m. on Wednesday, the President, Mr. DENIS NOLAN, took the chair, and requested the Secretary to read the minutes of the last annual meeting. These minutes were passed as read.

PRESIDENT'S ADDRESS.

DENIS NOLAN, NEWTON ROBINSON.

A severe winter and a cold, wet spring left a large portion of the bees in rather poor condition at the beginning of the white honey flow, which was of rather short duration. Consequently, with the exception of a few localities, the crop of white honey was rather short. While a large amount of buckwheat was sown, the flow from it was small owing to cool, wet weather at the time it was in bloom.

The dark cloud has a silver lining, and the rain clouds that kept the bees in the hives had the effect of bringing up one of the greatest crops of young clover to blossom next year that it ever was my privilege to see.

The honey market has been quite satisfactory, the prices realized being quite as high, if not higher, than what has been realized for years. In comparison with other food products, honey is as good value for the price even then as other articles of foodstuff in its class.

Your committee who waited on the Minister of Agriculture were successful in having the grant for the inspection of apiaries materially increased.

So far as I am in a position to know, the inspectors are doing good work and their efforts are having good effect, and American foul brood in many localities is being cleaned up fairly well.

Your executive committee, in whose hands was left the arrangements for an exhibit of honey at the Horticultural Exhibition, found the local associations somewhat reluctant to attempt exhibiting under the management of their own association. The show committee succeeded in having the honey portion of the money increased to $500. The Middlesex Association decided to make an exhibit, and your committee have also set up an exhibit.

While we feel we have not yet accomplished all we would like to, we have made a start in the matter, and I would like every member to pay an early visit to the show and that you deal fully with this matter at a later session.

MR. J. L. BYER, First Vice-President, in replying to the President's address said: One point taken up was the fact of the demand for honey being so good. I know it has never been so good in my own case as this year. It was not a question of whether we could get a good price or get sale for the honey; it was a question of how much we could supply. I turned down an order for 10,000 lbs. at one time. The demand for honey is very good. While the crop was not heavy the price more than compensated for that. One point was not touched upon by our President, and that is the ruling made this fall at the Canadian National Exhibition in regard to barring our exhibitors from honey-selling in a retail way. There has been a lot of unjust criticism and correspondence, which was not called for, and I hope before this meeting is over it will be cleared up. No one was to blame outside of the management. The fact is the bee-keepers were the only ones who had the privilege of selling without paying. I want to say to you, one and all, before this discussion comes up, that no one connected with the Ontario or any local association had anything to do with it. I say this in the way of justice.

Miss Ethel Robson, Second Vice-President: I think most of us who take up bee-keeping start out thinking we know a great deal and are ready to talk, but as we go forward we grow in humility and would rather keep quiet. That is how I feel after my experience, because each year I find so many new things to learn. There is one word I would like to say. You remember the discussion we had last year in regard to the counties taking up the work of exhibiting. I would like to call your attention to the fact that Middlesex had made good this year. It was a little difficult, perhaps, for us to do it, but at any rate we would be very pleased to have you go and see our exhibit at the Horticultural Show, and I hope we will see more counties represented there next year.

I think we bee-keepers in the matter of the disposing of our honey are probably somewhat behind the times. The bee-keeper and the business man do not always seem to be combined in one person. We have to learn more business methods in bringing our honey before the public. It is not easy to do this, but I find it makes bee-keeping much more interesting if you can only get in touch with the people who are eating your honey. I think we have to study them as well as the bees that produce it. We will hear more about that from Mr. Tyrell, and I heartily commend his coming address to you for your careful consideration.

FEDERAL LEGISLATION REGARDING BEE DISEASES.

Dr. C. G. Hewitt, Dominion Entomologist, Ottawa.

I did not expect when I came in for a few minutes this afternoon that I should be called upon to make any remarks, but Mr. Hodgetts asked me, in view of the discussion last year, if I would say something about the progress of that question.

I received in due time your resolutions, which were forwarded by Mr. Hodgetts, and we took the matter into consideration. I also when I was down here and in Washington discussed the whole question of legislation with Dr. Phillips, knowing what we did would concern them and knowing what they did would concern us, and as in other matters of legislation I felt that any action on our part should be supported by action on their part. We came to the conclusion that, unless we could in some way govern the importation of honey into Canada, it was very little use attempting any legislation of a drastic form with regard to the introduction of bee disease into Canada. Honey is one of the chief agencies through which the disease is spread, and unless we can regulate the importation of honey there is not much use in passing laws. My idea was that we should legislate in such a way as to prevent the importation of bees or honey from any districts except those that were certified to be free from disease. You can imagine how that would affect some people, the mighty uproar it would arouse, and the streams of people interested going to Ottawa, the outcries of confectioners, etc., who import from the United States and the West Indies. Therefore, for the time being, that question is hung up. The problem presented itself to me in somewhat this way. We might pass resolutions saying we could not have any colonies of bees coming into Canada unless they went into quarantine, or came from districts certified to be free from disease, they had to come in with a clean bill of health, but to do that and not take any action in regard to the regulation of honey itself to my mind would be like the old man who tried to shut the fowls and the chickens out of his yard by making a fence and putting two holes in it, a large one for the fowls and a little one for the chickens, and he wondered how the chickens got in. So for the present the matter is still *sub judice,* but at the same time the matter is not dead and is receiving our careful consideration.

The question of introducing legislation this year and last year, for other reasons, has been and will be a very difficult matter, as you will readily understand, but I would heartily welcome any further expressions of opinion from members of the Association with regard to that question of honey. If you have any suggestions to offer me, I would be only too glad to have them in consideration in making recommendations to the Minister. I would say we have endeavored to assist you in every way.

Since I came over to Canada, three years ago, it seemed to me that, in view of the great importance of bee-keeping in Canada we were not giving it the attention we should at Ottawa and in the Dominion Department of Agriculture. In view of that I have been trying to see what could be done. Something has been done and I hope it will be a help to the bee-keepers of Canada generally. I felt personally, although I was most interested in bee-keeping, and by the publication of a Bulletin during the last year hoped as much as we could to give instructions to would-be bee-keepers and those who wished to deal with disease, at the same time I had so many problems to deal with that it was impossible to give any direct attention to bee-keeping itself, and I realized that there was room for an immense amount of real experimental work, which no bee-keeper could do because it wouldn't pay him, and the actual experimental work, I considered, should be carried on by the Department at Ottawa. I do not think we are yet at the bottom as to which variety is the most suitable and the question of queen rearing, and, having decided on the nature of the work, the next thing was to find the best man to do it. Although we have extremely good men in Canada, I had a certain person in mind who was recommended to the position and has now been appointed. He is a man whose reputation was not confined to Great Britain, but who was well known on this side for his very special work and intimate knowledge of the scientific method of bee-breeding. I mean Mr. Sladen. I have known him for years, and he is acknowledged in England to be one of the most scientific bee-keepers and breeders in the Old Country, and I was fortunate enough to get his permission to recommend him for this position when I was over in England. His appointment was made, and he is now in Canada. There is quite a howl in England because they have lost him. When I was over there they said to me, "Of course, we shall get him back again," I said, "You cannot get him back; he is in Canada to stay; he has a tremendous field there." I just say these few words by way of introduction.

It seems to me the problem of queen rearing and varieties of queens was of the same nature as the varieties of different kinds of grain. In the Dominion Department of Agriculture in Ottawa we are trying to find out the different varieties of grain for different localities. It seems to me we ought to be able to do something on the same line with bees, find out what varieties of bees were most suitable to different climatic conditions, because I believe that climatic conditions influence the honey gathering qualities and disease resisting qualities of bees in a great measure. Further, we want to help on this question of the control of disease, not only in Quebec, but in different parts of Canada, and for that purpose there is a great deal of investigation of the varieties of bees that have the most resistance to disease. The Italians are supposed to be the purest. We want to see to what extent and what varieties of Italians. We want to begin with pure stock, and for that purpose we ordered from Italy, and Mr. Sladen brought them with him, six or eight pure Italian queens which we are going to use in experiments. We are going to begin with pure Italians, and in that way we know we are beginning with pure stock. From those we hope to go on with these experiments. In fact, I rather hope we will be able to carry on this queen rearing and pure mating so as to help some of you bee-keepers. You may be desirous of obtaining an absolutely pure queen for your use, just as a farmer is anxious to keep pure blood in his herd.

Anyway, you will understand the character of our investigations which we hope to carry out, and in that way be of real assistance, not mere book assistance or just giving you addresses. Of course, you must realize Mr. Sladen's work will not be confined to Ontario alone, but he will help a good deal in other provinces. There are other provinces not so favored as Ontario—New Brunswick and Nova Scotia. They have no assistance whatever. It is my intention to have Mr. Sladen go this winter to look over the situation and see how he can help, by giving lectures and so on. In that way great advantage will accrue not only to the bee-keepers of Ontario but also the bee-keepers of Canada in general in connection with this important subject of apiculture.

IMPROVED METHODS OF SELLING HONEY.

E. B. Tyrrell, Detroit, Mich.

This paper was read by Mr. C. P. Dadant, Hamilton, Ill. "Salesmen are born but not made" is an old saying that has been thrown at us from time immemorial, but it is an old saw needing a lot of filing for "Salesmen are born *and* made" if they will recognize and use the fundamental laws underlying salesmanship.

The extent to which salesmanship enters into our lives is little recognized by the majority of us. No matter what our occupation, we will find by careful analysis that the art of selling plays an important part in our success. The laboring man requires salesmanship in order that he may sell his services to the best advantage. The farmer should know the laws of salesmanship in order that his product may be marketed to the best advantage. The lawyer must exercise the principles of salesmanship if he gets the best patronage. The banker to make the biggest success must observe the finest points of salesmanship; suggesting, persuading, and creating favorable impression, and doing it so nicely that no one suspects he is trying to sell the services of his bank. And so we could go on down the line nameing one occupation after another, all dependent on salesmanship, and showing the most successful men are the best salesman.

Three factors enter into a sale; the salesman, the thing sold, and the customer. No sale can take place without these three factors. To consider two and ignore the third would be to invite failure. So we must analyze each in turn.

THE SALESMAN. A successful salesman must be able to inspire confidence, create desire and command decision. He is without doubt the most important factor of the three, and yet in many establishments he is evidently considered the least. Large department stores pay out thousands of dollars for advertising, stock their stores with excellent goods, and then many of them turn the selling over to the most incompetent of clerks. How many times have you gone into a store with your mind all made up to purchase a certain article, have the clerk hand it out to you, take your money, and then suggest that "You don't want any thing else do you?" instead of saying "What next, Mr. Brown?" If you have never noticed this in the past just observe in the future how many "order takers" will suggest to you that you don't want any thing but the article you have just paid for and that you came in for. Then again notice the occasional live one who will fill the order you gave, and then tactfully call your attention to a half dozen other articles they have "just received" and if you don't buy more than you came in for you are a good one.

Many would-be salesmen so conduct themselves that your attention is centered on them instead of on the article to be sold. This is done either by dress or manner. A plain simple dress is the only thing allowable. An earnest, enthusiastic manner gets the attention where you want it—on the article to be sold. Confidence is a prime requisite to selling, and we don't generally have the most confidence in the salesman who dresses to extremes, either too poor or too good, or who is continually boasting of what he has accomplished.

THE THING SOLD. The article itself must have merit. It must be worth the price asked. It must be able to command the respect of both the customer and the salesman. No salesman can continue to successfully sell an article he does not have confidence in. He must be able to become enthusiastic over it. He must be willing to defend it at all times. This defence must be sincere, for insincerity will always tell in an attempted sale. The salesman may delude himself into thinking he can sell an article he does not have confidence in, but believe me his success will be short lived.

THE CUSTOMER. You would hardly expect to sell a set of blacksmith's tools to a lawyer. You would hardly go to a saloon to sell Bibles. And yet salesmen sometimes make attempted sales to people who have no more use for the article sold than a lawyer would have for blacksmith tools or a saloon would have for Bibles. The customer must be one who would have use for the article to be sold. Possibly he doesn't know that he needs it, it is then the salesman's business to show him.

The sale itself takes place in the mind. If a man comes to you and asks for a given article and you supply that article and take his money, don't delude yourself into thinking you have made a sale. You haven't. You simply filled his order. He made the sale himself, and it was made before he reached you. There is a big difference between taking orders and making sales. You must actually influence the other man's mind, and persuade him to purchase at a profit to you that which you have for sale if you are to consider yourself a salesman.

For every sale that is made the customer's mind passes through four stages or changes. The four changes take place whether the sale is made in one minute or one year. They are "attention, interest, desire and resolve to buy." You must first get your customer's attention; this must be prolonged into interest; interest must be intensified to desire; and after that you must get resolve to buy, or action. Many sales fail because this law is not understood. Attention is secured, but the salesman dosen't know how to ripen it into interest. Or possibly he attempts to force the "resolve to buy" before even interest is secured. When he has secured attention he should know that the customer's mind must pass into that stage called interest. When interest is aroused he has even harder work before him to carry it along to the point where a desire is created. And when the desire is created he must be able to carry the hardest fort of all, and get the "resolve to buy." With these four changes in mind, with this law understood you should be in a better position to sell your honey than you were before.

The first that we would consider then is the honey salesman. He may be yourself, your paid representative, or a circular or advertisement. Even a letter sent to sell honey is in that case your salesman. So you must be careful that whatever it is that it conforms to the first law of selling; that it can command attention. That attention, understand, must be for the honey offered. If you are the salesman your dress and manner must be cultivated so you will not attract undue attention to yourself. You must be neither over-dressed or under-dressed. You must be enthusiastic and earnest in your manner but not loud, noisy or boasting. These same rules must apply to your paid representative. If it is a circular or advertisment it must be printed on good quality of paper, honesty and reasonably worded or it will fail of its mission.

Next, considering the thing sold, we must have a good article of honey, one suitable to the tastes of the particular class of people we are attempting to sell to. Don't attempt to sell buckwheat honey to those who prefer clover. Give them what they want. Put it in a popular sized and popular priced package.

Your customer. Owing to the nature of honey, your customer can be found in every walk of life. But you will have better success if you pick out a certain class and aim your selling campaign at that class. Some people can do better work in selling honey to the business and professional men for personal consumption. Others can sell better to women. Still others have better success in reaching the working men. Each of these classes requires a little different method of selling, a little different set of arguments presented, than the others and it will pay you to study them.

For the business or professional man it is not so much a matter of price as of quality. For the women an argument of economy has its effect, as well as the value of honey to the children. And then you must bear on the fact that your honey is pure, but don't do this unless she raises the question. It is not advisable to raise doubts where there are none. Explain the difference in flavors, and why there is a difference. Tell her honey will keep well if properly cared for and then tell her how to keep it. A woman is interested in details, while a business man is too busy to hear them. Workingmen need but little argument excepting the one of taste and price. They will pay the price, too, if it is worth it.

To the man who is buying to resell you must add an argument of saleability. Not only must you have a good article but you must have it in such shape that it can be resold at a profit. The same package you use for the consumer trade will not apply for the grocery trade. Neither will the same arguments. Each must be studied and its needs supplied. Even where you are selling to the consumer trade exclusively, you will find that different classes need different sales methods to reach them.

What I have said to you so far are hard and fast laws of salesmanship. They have been proven to be true in so many cases that we can accept them as facts. What I am going to say to you now in conclusion, however, is a matter of personal opinion and of course is subject to debate.

Wherever it is possible I would advise a direct to the consumer trade in honey. Where that is not possible I would get as near that as you can. For comb honey uniform grading rules are advisable, and if a prediction is in order I will predict that the time will come when we will have central grading stations, where all the honey of a given locality is sent by the producer there to be intelligently graded and cased. This of course refers to the wholesale trade.

For the consumer trade I would use the 4¼ x 4¼ slotted section, packed in shipping cases holding 12 pounds. This is about the right amount to sell to an individual for home consumption.

For extracted honey I would recommend the 10 lb. friction top pail, and then I would put 10 lbs. of honey in it. I must condemn the method of selling extracted honey and including in the weight the tin which contains it. You don't ask your customer if he wants to buy 10 lbs. of honey and tin, and yet that is really what you are selling him. When he believes that he is buying a certain number of pounds of honey, and then finds that part of it is tin, he is apt to feel that he has been taken advantage of, and that does not leave the proper feeling for future sales. It is all right where you tell him he is getting the pail weighed in. but it is not always told, and he has a right to be dissatisfied if he buys 10 lbs of honey and does not get it.

THE PRESIDENT: I think the selling of honey is a very important subject, and there are a great many points in connection with it that we could profitably touch on. If we are provided with a crop of honey we have to sell it, and it is up to us to make the most out of it.

MR. J. D. EVANS, Islington: I am a little sorry that before this gentleman wrote that paper he had not heard Miss Robson's speech about bee-keepers not being good business men. I suppose I am a heretic, but I am strongly of the opinion that bee-keepers should not retail the honey; it should be put in the hands of the wholesale men. I think to keep up prices we should have as few people as possible controlling the prices of any article. I remember years ago honey was sold direct to the consumer and those were the times when you could buy everything cheap. Then there came a time when the articles were sold wholesale. Very few farmers kill their own cattle and sheep; they are sold to the large dealers. You may call them trusts or what you like, but the fact is they keep the prices up higher than a thousand retailers competing with each other could possibly do. If we get the honey into as few hands as possible every year, and not have a host of retailers cutting each other's throats, the prices will be much higher. There possibly was a time when it was difficult to get rid of honey. Now it is generally handled by storekeepers and the prices are good. That is largely due to the fact that the bee-keepers are not retailing as much as they were. I am trying to retail as little as I can. The only thing is, I have a few old customers who continue to come to me, and I do not like to disappoint them. When men in Toronto will buy 50 lbs. of honey there is no necessity of us trying to take out a few pounds in order to retail it. I think, after all, if you want to keep up the price of honey it is better to dispose of it by wholesale, and let the men who are keeping up the price retail it.

MR. R. LOWEY, Woodrows: Mr. Evans spoke of the time the farmers killed their own meat and brought all their produce to market. To-day there is no such thing in this country. A few wholesale men buy those things up, and put them in cold storage. In this way they control the market, yet the farmer gets more. The consumer pays more and there is more demand. I do not believe bee-keepers should peddle in the city or the towns, but at home in the country it is different;

retail all you can at home. Since I came to the city I was asked if I had buckwheat honey, I said, "Not half enough to supply my own neighborhood." They come to my own place and get it. If I packed it up I got more for it. Of course, it is worked up so now that it has become a staple. I remember the time when a few went to a drug store to buy a little honey, and now it is sold in every grocery. There is another thing I would like to talk about, whether it be 10 lbs. or any amount of honey, do not sell the case and say there are 10 lbs. of honey when you have really weighed the case in. The package goods are put up in that way. It doesn't make any difference what others do. I would like if the bee-keepers say 10 lbs. that there really should be 10 lbs. I sold to a friend going west. I do not produce much extracted honey. He only wanted about a ton. He wanted it put up in 5 lb. pails. I named him a certain wholesale price, and said, "I won't put it up as being full weight. I will charge you whatever the pails cost." He took it in that way and I think that is right.

A Member: I would like to say a word in reply to Mr. Evans. I met a gentleman this morning who is in this country for the express purpose of procuring apples. He is a broker's agent from Liverpool, and says the law doesn't allow a broker over there to buy and sell. He said, "I come away here and buy apples and make real good money." He said, "There is a reason for it. Supposing the brokers of Liverpool were to get their heads together and say to the Ontario bee-keepers or apple-growers, 'We will give you so much for your honey or apples,' they could smash trade." The law doesn't allow them to do that. Now, if only a few could buy honey, they would keep pushing you down. If a dozen would monopolize it they would tell the people, "You get so much and that is all you will get." I think this gentleman's idea is to get in touch with the co-operative men and buying their product, afterwards sell it directly to the retailer in England, Scotland and Ireland. In that way he thinks people here would get more for their apples. That is contrary to Mr. Evans' idea. I am speaking now of a very large dealer in Liverpool. I think the cheaper you can get the article to the consumer the more he will consume. It is this trouble of going through so many hands before it gets to the consumer. The people of Toronto are actually paying 100 per cent. for milk over what the producer is getting.

Mr. Byer: I certainly think it would work into the hands of a monopoly and we would get squeezed. If it is going to work out that putting everything into the wholesalers' hands is going to raise high prices, well, I am going to sell all the honey I can to consumers. This year I have got 12 cents for honey in Winnipeg. I could readily get $1.20 per pail for a pail weighing only 10 lbs. pail and all delivered f.o.b. I could have sold all the honey I had this year in the West at that price, and that is certainly better than taking 10 cents wholesale. I certainly think that the more we can come in line with Mr. Tyrrell's suggestion and deal with the consumer face to face it is the better.

In regard to the much discussed size of the package. I think there is a tendency to strain at a gnat and swallow a camel. I am not parading my honesty. When I do business I like to give a square deal, and I want to say there is nothing dishonest in selling a pail of honey when you say it weighs 10 lbs. pail and all. If there is anything wrong in that I am willing to be corrected and will turn around and do better in the future.

About the size of the tins: one of the largest manufacturers of honey tins has given up manufacturing the large tins. This question is brought out year after year. It certainly is deception to sell a man a pail of honey and tell him

him there are 10 lbs. of honey there, but when I tell him in my advertisement that there are 10 lbs., pail and all, I don't think that is deception. I have enjoyed hearing Mr. Tyrrell's paper. It is businesslike.

Mr. W. J. Brown: It seems to me very clear, if you get an order for a hundred pounds of honey, and you ship your customer 100 lbs. of honey, he cannot kick.

Mr. Byer: I would not ship him 100 lbs. pails and all unless I told him that the pails were weighed in.

Mr. Brown: In my experience, I think the proper way is to put in the 10 lbs. of honey. If the customer wants the honey he wants the tin. If you want to charge him for the tin, all right.

Mr. J. W. Sparling, Bowmanville: Till this year I have been in the habit of buying a net weight pail. I sent to one of our large manufacturers for some pails, and they wrote me back that they had ceased to make the net weight pail, there was such a small demand for them. So I got the gross weight pail. I sold to a grocer in our town and told him "These are gross weight pails." "Oh," he said, sure thing; nearly all our canned goods are that way. That is the right way to put it up."

A Member: The discussion on net or gross weight bears out Miss Robson's remark about there being a number of bee-keepers who are not good business men. We are getting along very nicely selling our honey by weighing tin and all. I believe the majority of bee-keepers in Canada sell it that way and I do not hear any kick. I think the wholesalers and customers understand it. There is not much deception about it. We buy everything in the same way. The way it is succeeding is proof that it is all right. I am selling it that way and say, "Ten pounds of honey tin and all." If you put your honey up ten pounds net, and then charge three-quarters of a cent a pound extra for the pail, you will find a big kick coming from the wholesale men after you ship.

H. G. Sibbald: Mr. Evans' argument about selling to wholesale men all the time reminds me that it takes all sorts of people to make a world. It takes all kinds of people to sell honey. It is a good job everybody does not sell honey wholesale. I like that way best, but I am always glad there are others that do not, or else there would be too much sold that way for the good of the honey business. There is a place for everybody to sell. A small bee-keeper might make the last cent out of it locally, but a man producing more, say, 20,000 or 25,000 lbs., could hardly sell all retail. It pays him better to sell wholesale.

There has been a remark made that bee-keepers are not good business men and women. I would like to see somebody try to buy honey from the bee-keepers; you would soon find out you could not get many snaps. (Laughter.) A short time ago Mr. Pettit, sent out some circulars to the bee-keepers of Ontario. He told them to send a sample and the price they wanted. I had the privilege of looking at the replies, and most of them asked enough. I think the bee-keepers are doing very well along the business line, and you can safely trust them to sell their honey.

Mr. F. W. Krouse, Guelph: I would like to give you my experience. I went to the market once a week and had very good success, but I worked gradually into the tins. Now I sell all in the tins. I do not sell 10 lbs. of honey; I sell it tin and all. When I first started I had a job to dispose of 100 lbs. of honey in a season; now I sell an average of five tons. If I cannot produce it myself I buy it. Each storekeeper also buys a thousand pounds and some more. I started 10 years ago, and as I say it was a job to sell. I could not even sell my surplus to the storekeepers. Perhaps it was because I sold on the market.

Morley Pettit, Provincial Apiarist, Guelph: In Guelph there is perhaps more honey consumed to the population than in any other town in Ontario. They use it constantly, have it on their tables. It is a question of bringing it before the people so that it becomes a staple. I know of homes where they would never think of setting a table without honey, at least once a day, and it is often used three times a day. Honey also takes the place of butter in a great many respects.

Then as to the net and gross weight. I thought we had settled that about half a dozen years ago, passed resolutions and nailed them down as tightly as we possibly could. It seems as though we like discussions and arguments. If we cannot argue about the size of the package, we will argue about the size of the hives.

Mr. Evans: If the friends want to retail their honey I will give them that privilege. About that old question, the size of the cans, that will never be settled. I never could see any difficulty whatever in getting the price of the pails. I sell my honey wholesale in Toronto. I bring it in 60 lb. pails and get them back. I have had some 10 lbs. pails. I simply say to the man, "I have so much honey in 10 lb. pails. You can have that and pay me for the pails." There has never been a kick.

Mr. J. B. Holmes, Athens: The paper which has been forwarded by our good brother Tyrrell has been a most pleasing one. It has brought to us some very good and timely advice. It is also most pleasing that, as Brother Tyrrell could not be here with us, it has been presented to this convention by our most worthy friend, Mr. Dadant. A number of features, however, in connection with this paper might be referred to. In the first place, he speaks of the salesman, and he notes three special things in connection with the salesman. The first is his persuasiveness, and that is good and always good up to a certain point, as we probably will remember having discovered years ago when persuasiveness played a part in certain things we were interested in. Next he referred to what I would call "stick-to-itiveness," and we see that amply illustrated in the boy who meets us when we are hurrying down toward the station yonder and says, "Carry your grip," "No; I don't want it carried." "Carry your grip for a nickle." "No." He still keeps step with us. "You don't want it carried; well, why don't you set it down then." (Laughter.) We say, "Yes, here are two nickels; carry it." That is stick-to-itiveness. (Laughter.) Coming to Bro. Evans' suggestion about the package and giving our customers actually what we pretend to give them, I think that is timely. I think some of the speakers previous have explained about that matter of the 10 lbs. package, and if that advice is fully followed it is a safe course to pursue. Give our customers to know beyond the peradventure of a doubt that they are getting 10 lbs. pail and all, and don't you forget it.

Mr. Sibbald: I hope I did not give the impression that I thought bee-keepers were asking too much, but I wanted to prove they were good enough business people. The same prices would be asked on Front Street.

Miss Robson: I hope they are able to get them. In our own county—and we produce some of the very best in Ontario—we have nothing but the best clover—I know men who have produced up to 10 and 20 tons, and they sold first-class honey for less than 10 cents a pound.

A Member: They were not good business men. I have not sold a pound of honey for less than the highest price named by Mr. Sibbald, and if I had twice as much I could sell it at that.

Mr. Pettit: About this cheap selling of honey in large quantities, I want to tell you a story I heard, and it did not come from Middlesex County. There was a county where there was a lot of honey and a buyer went in prepared to pay a certain price. The first producer he met asked him a cent less than that, which was less than the price set by our committee. That, of course, set the price and the other producers lost a cent per pound on the whole car. I consider the bee-keepers in that county, wherever it was, are not good business men. It was simply because the crop was good in that county, and they did not realize the difference it makes to have a poor crop in all the eastern counties and practically nothing in Quebec.

A Member: I would like to have the Honey Committee interpret the price set, and who was to get that—and in what sized parcels.

Mr. Sibbald: It is pretty hard to advise the whole country to a cent or two, and to a package, or anything like that. The question of freight is another thing. There has got to be some give and take about freight that would be fair to the wholesale man. Those lower quotations are usually given for the wholesale. The higher price is meant for the retail grocer. Supposing you have to sell to a commission man who has to sell to a grocer, take the lowest price. Then, if you are selling to a grocer, take the higher price. If you are selling to a consumer, take the retail price. If you put it up in smaller packages, it is a little more money for that.

It might have been better if there had been a little more time given to the circular and a little more details given.

A Member: In sending my report I asked them particularly to state in their report what sized packages they referred to.

Mr. Sibbald: There is this point about selling honey that perhaps people do not think of. We produce our honey and, therefore, do not know exactly what price to ask for it. If we go to work and buy something, we know what we paid for it and know we should have a profit in selling it again, but people who produce a lot of honey (take Middlesex County, for instance, where they had a splendid crop) are apt to think that honey is not worth as much as I would think it is worth where the crop is not as good. Where the crop is poor people are apt to ask more for it. Where they have a good crop, they are apt to think the country is flooded with honey and that they should take hold of a good price when it is offered. If the people who have good crops would take advantage of the poor crops in other localities, they would get good prices easily.

Wm. Couse, Streetsville: A Committee can never say what people should get. We find that, I suppose, in every case. For the last six or seven years that report has gone out advising a certain price, and in buckwheat season or a little later we received card back, where a question had been asked, "What did you receive for your honey?" The year before last we found out that from 80 to 90 per cent. had actually received the price. This year it was practically the same. A few enthusiastic people sold their honey at nine cents. Now, we cannot tell everybody what to do, but if they will listen to the report they will know what the crop is. There is no doubt at all that that report has been worth two cents a pound, and this year they need not have sold for those prices. The Committee took everything into consideration that the market was practically bare, the honey was scarce, and now people are getting more.

A Member: In our city we had a man who sold his honey at a very low price. We got him to join our Association, and the report came from the Honey Committee. He held up for the price and got it. In that case it did a lot of good.

A Member: I would like to compliment our Honey Committee on the very excellent work they have done for bee-keepers in Ontario. I think it has been a great advantage to anyone who had honey to sell in large or small quantities. When the report goes out, our grocers, etc., see it and it makes it very much easier to deal with them. Previous to that it was hard to deal with the grocer. He would not know whether you were asking him too much or not. I have found it very much easier since to sell honey. It has been one of the finest things the Association has ever done, to appoint that Honey Committee, and they have done very excellent work for us.

REPORT OF THE EXECUTIVE OF THE BEE-KEEPERS' ASSOCIATION, 1912.

The membership of the Association for 1912 is 529; 421 came in from affiliated associations and the balance 108 in single subscriptions. The membership this year is 529, as compared with 448 last year, one new association having affiliated with the Ontario Bee-Keepers' Association the past year, namely, Toronto B.K.A.

The affiliated associations with their members are as follows:

Brant	19 members	Middlesex	39 members
Glengarry	10 "	Norfolk	34 "
Halton and Pee	26 "	Northumberland	36 "
Hastings	10 "	Oxford	11 "
Haldimand	12 "	Russell	17 "
Huron	31 "	Simcoe	17 "
Leeds	18 "	Toronto	22 "
Lincoln and Welland	31 "	Victoria	26 "
Wellington	29 "	York	23 "

The foul brood inspection was again carried on during the year. The districts were reorganized and 17 inspectors appointed for the province. The grant for this purpose this year was $4,000. $1,000 in excess of last year.

A circular was issued to all bee-keepers and the crop report was again compiled on the information gathered from replies and a copy sent to all members of the association. The bulletin on Bee Diseases was revised and issued as Bulletin 197.

THE INSPECTION OF APIARIES IN ONTARIO, 1912.

Morley Pettit, Provincial Apiarist, Guelph.

The Organization for the Inspection of Apiaries in Ontario consists of the following points:

Foul Brood Legislation by which inspectors are appointed and they are given power to act.

2. The Inspector's Conference and course of instruction for training men for the work.

3. The system of circular letters and other correspondence with bee-keepers keeping them interested and securing their co-operation in the struggle against diseases of bees.

4. The Apiary Demonstration Meetings conducted where they will do the most good amongst the bee-keepers during the season.

5. The bulletin on Foul Brood which is revised and published annually by the Ontario Department of Agriculture.

6. The system of reporting and centralization of control of inspection work in the office of the Provincial Apiarist at the Ontario Agricultural College.

INSPECTORS' CONFERENCE.

First. There is no change in Foul Brood Legislation from last year.

Second. The Inspectors' Conference was held at the Ontario Agricultural College at the time of the Short Course in January. Methods of inspection were fully discussed by the Inspectors and resolutions were passed by them which committed them to a more uniform policy of inspection work for the ensuing season. The following resolutions were passed: First with reference to the thoroughness with which colonies should be examined. Some claimed that it was sufficient to look at one or two combs in the middle of the brood chamber. Others held that every comb should be examined. It was finally decided that under ordinary circumstances when disease was at all likely to be present, every comb in the brood chamber which had ever contained brood should be inspected on both sides unless disease was found before all had been gone over and that an Inspector could not report having examined a colony until he had done this. Inspectors are recommended to be particular about reporting the number of colonies examined, and not report that they have examined so many colonies in a day, unless they have done the work thoroughly.

The next recommendation was that a letter should be sent to each bee-keeper, where disease was reported last year, about ten days before the visit of the inspector, advising him that the inspector was coming, and would expect to find diseased colonies treated; also a report blank should be left with each bee-keeper where disease is found by the inspector, which the bee-keeper would be expected to fill out, stating that he had treated the colonies according to directions, and mail to headquarters ten days after the inspector's visit.

The matter of doing inspection work early in the season was also discussed, and it was decided that apiaries should be inspected as early as possible, in order to give the bee-keeper an opportunity to treat his diseased colonies at the beginning of the swarming season.

INSPECTORS' TRAINING COURSE.

The last week of April and the early part of May were spent giving the special inspectors a thorough training in detection and treatment of foul brood and all practical matters on which they would be questioned by bee-keepers while on their rounds. This gave an opportunity for uniform efficiency on the part of the men that we had under our direct control.

EVERY BEE-KEEPER HIS OWN INSPECTOR.

Next the co-operation of bee-keepers themselves was earnestly sought by correspondence so as to save time and travelling expenses of inspectors. First a letter was sent to the complete list of bee-keepers (now about 7,000) early in the spring warning them against the danger of spreading foul brood, by allowing robbing to take place in the apiary, or by leaving diseased material of any kind exposed; also advising persons who had bees in box hives to make preparations for transferring them at the beginning of the swarming season. At the same time a spring report blank was sent to each bee-keeper asking how his bees had wintered and particularly whether he knew of any foul brood in the neighborhood and whether it was being looked after. The replies to these questions informed us of a number of diseased apiaries not on our list.

The organized records of inspection work as I have them now in my office reveal some very weak points in the system of inspection which has been followed in the past. For instance, whole townships were found diseased four or five years ago, and no inspector had been back to them since. In other cases whole counties were gone over thoroughly and no disease found, yet the inspector went over the same ground again the next year at great expense, while the first mentioned territory was rotting out with disease and nothing being done for it. Again in other cases, disease had been reported in the same apiaries, by the inspector, for three years in succession and there was no report to indicate that the bee-keeper was making an earnest effort to cure. These wasteful conditions are largely due to the system of having local inspectors each one working independently and according to the dictates of his own ideas.

With a view to saving this waste of time and money, a list was made during the winter of all bee-keepers where disease had been reported in past years. At the beginning of the inspection season a letter was sent to each bee-keeper on this disease list, frankly stating that for lack of means we had never been able to cover as much ground as should have been covered, and asking him to co-operate with us by being his own inspector and having his diseased colonies treated or everything ready for treating by the time the inspector came.

To make it easier for the bee-keeper we enclosed two report blanks for him to use in sending his reply, called Report No. 1 and Report No. 2. On the face of Report No. 1 was a form on which he was to report the condition in which he found his bees, especially whether they were diseased or not. On the back was an agreemnt which he was to sign stating that he would treat the diseased colonies on or before the 15th of June according to instructions given in the bulletin on diseases of bees, copy of which was sent him at the time of sending the letter. This inspection was to be made and the report mailed before May 24th. Report No. 2, which was a statement that the colonies had been treated according to directions was to be signed and mailed to me when the work was done. Considerable interest and helpful correspondence were aroused by this means, and the way paved for the inspector's visits.

APIARY DEMONSTRATIONS.

Apiary Demonstration Meetings were conducted along the same lines as last year, only a great many more of them were held. They were held in nearly every County of Ontario to the number of about fifty in all, with a total attendance of 1,286, the average attendance being about 26. This slight reduction in the attendance is not due to any lack of interest on the part of the bee-keepers but was caused by the remarkably unfavorable weather conditions during the demonstration period. Quite a number of the demonstrations were interfered with by rain making the attendance much smaller than it otherwise would have been. A few demonstrations held locally were not reported to me, but the following table gives practically all the meetings held in this way during the season beginning about the 22nd of May and ending with the end of June.

County.	Place.	Number present.	County.	Place.	Number present.
Carleton	C. E. Farm, Ottawa	20	Middlesex	Park Hill	45
			Muskoka	Gravenhurst	13
"	North Gower	20	Norfolk	Simcoe	42
"	Carp	42	Northumberland	Warkworth	25
Dufferin	Orangeville	13	"	Campbellford	40
Dundas	Winchester	40	"	Wooler	10
Elgin	Eagle	15	Ontario	Beaverton	Not reported.
"	Campbellton	16			
"	Aylmer	40	Perth	Stratford	22
Essex	Woodslee	20	Peterboro	Peterboro	25
Grenville	Kemptville	32	Prescott	Westminster	45
Grey	McIntyre	30	Prince Edward	Consecon	30
"	Markdale	17	"	Picton	30
"	Chatsworth	60	Russell	Leonard	15
Haldimand	Hagersville	25	Simcoe	Collingwood	11
"	Dunnville	25	"	Hawkestone	11
Huron	Clinton	20	"	Cundles	18
"	Zurich	20	"	Alliston	20
"	Wingham	10	Stormont	Cornwall	35
"	Blyth	12	Toronto	Toronto	35
Kent	Blenheim	25	Welland	Ridgeway	24
Lanark	Lammermoor	34	Wellington	Salem	20
"	Scotch Line	44	"	Moorefield	25
Leeds	Athens	40	"	O. A. College	25
Lincoln	Niagara Falls	12	"	Green Park	20
"	Ex. Farm, Vineland	25	York	Islington	8
			"	Victoria Square	Not reported.
Middlesex	Clandeboye	25			

Total attendance, 1,276. Average, 25.

DISTRIBUTION OF BULLETIN ON DISEASE.

Bulletin 190, "Bee Diseases in Ontario," used by the Inspectors for distribution during 1911 was revised and enlarged during the winter and issued as "Ontario Department of Agriculture, Fruit Branch, Bulletin 197, Bee Diseases in Ontario." 10,000 copies of this Bulletin were distributed throughout the Province my mail and by our inspectors while on their rounds.

CENTRAL ORGANIZATION OF INSPECTION.

The organization for the Inspection of Apiaries in 1912 has been marked by a radical change in the form of reports used by Inspectors reporting their work. Formerly an inspector visiting a bee-keeper and finding his bees diseased gave him a copy of the bulletin and instructed him as to how he was to cure the diseased colonies. If possible he got back to visit this bee-keeper again later in the summer to see whether he had done his work according to instructions. Some of our inspectors secured a promise from the bee-keeper that he would do work on the ground that he would be more apt to do a thing that he had promised to do. It will be seen that this extra visit to the bee-keeper greatly increased the expense of the inspection work, or in other words reduced the amount of work one inspector could do with a given sum of money and the only benefit of the second visit was to see that the contract had been carried out, because it was then practically too late to treat colonies otherwise than by destruction. To avoid this extra expense and secure greater efficiency we have added this year to the report form an agreement form on the back, which the bee-keeper is required to sign stating that he will treat the diseased colonies according to instructions on or before the date set by the inspector himself. The inspector forwards to my office the report filled out, stating the number of colonies diseased, etc., and with this agreement signed on the back. He leaves with the bee-keeper another report, printed on yellow paper to distinguish it from the first, which he is to sign and mail to us when the work is done. The number one reports sent in by the inspectors to my office were filed according to the dates on which their respective yellow reports were expected, then when the yellow report came in they were attached to the first reports of the individual bee-keepers showing that the work had been completed. When these yellow reports did not come in from the bee-keepers on time, the matter was taken up with them by correspondence direct, and in practically every case we were able to get the bee-keepers' report stating that he had done the work according to instructions. It will be seen at a glance that this method of reporting practically does away entirely with the necessity of an inspector going to the same apiary twice in one season because there are very few bee-keepers who would report that they had treated their colonies when they had not done so, and under the provisions of the Act, the inspector has authority to make a good sized bonfire in any such cases. Where the bee-keeper refused to sign the agreement, the inspector was instructed to destroy all diseased material by fire on the spot, and in any case where a bee-keeper reported that he had treated his colonies when he had not done so, we could make it very unpleasant for him indeed.

THE SEASON'S WORK.

At the beginning of the season the following Apiary Inspectors were appointed: John S. Schrank, Port Elgin; John Artley, Blantyre; Jas. Armstrong, Cheapside; Arthur Adamson, Erindale; Henry Johnson, Craighurst; Herbert Dougherty, Long Bay; W. Scott, Wooler; Joel Barlow, Delta; to be paid at the rate of $5.50 per day and travelling expenses other than board; Frank Eric Millen, Ontario Agricultural College, Guelph, to be paid at the rate of $3.50 per day and travelling expenses other than board; G. Leroy Jarvis, Ontario Agricultural College, Guelph, to be paid at the rate of $3.00 per day and travelling expenses other than board; Eric Hutchison, Wm. B. Angle, Geo. F. Kingsmill, Robert Fowler, Leonard J. Gardner, Ontario Agricultural College, Guelph, to be paid at the rate of $2.50 per day and travelling expenses other than board.

These Inspectors started work the latter part of May and continued during the summer. A great deal of the time until the end of June was spent in conducting apiary demonstrations. This was found to be necessary as farmers are too busy for such meetings later. As was stated above, 1,286 persons were reached in this way, and the average attendance at about fifty meetings was 26. It does not require any proof to show that far more educational work is done by a reasonable number of these demonstration meetings than could be done in the same time by the Inspector visiting apiaries.

For the inspection work proper, each of the Inspectors was given a list of the apiaries in his county where disease had previously been reported and was instructed to visit these apiaries first and discover their condition and act accordingly before going out into new territory. As there were less than 1,000 names on the disease list and as 1,152 visits were made to apiaries during the season, it will be seen that had each Inspector followed instructions we would have more than covered the disease list in the Province. For various reasons this was not very carefully done. With European Foul Brood it was found more advisable to work on the outskirts of the disease district and forewarn those who still had bees worth saving. Some of the local inspectors in the American Foul Brood districts took it upon themselves to look up new cases of disease in their counties, thinking that where they were last year everything would be cured. This acting independent of authority and without consulting the one in charge has caused more trouble and the resulting confusion has caused more dissatisfaction among bee-keepers in diseased districts than any other thing in reference to our work during the past season. The trained inspectors, however, working immediately under directions were, with only a few exceptions, able to cover their territory and report on every case of disease which we had on the list. The following schedule shows the report of inspection work arranged by counties:

County.	No. Visits to Apiaries.	No. Apiaries found diseased.	No. Colonies found diseased.	Total No. Colonies in diseased Apiaries.
Brant	21	4 A.F.B.	6	100
Bruce	61	21 A.F.B.	37	601
Carleton	14	7 E.F.B.	42	91
Dufferin	16	4 A.F.B.	8	15
Dundas	1	0	0	0
Durham	3	1 A.F.B.	4	95
Elgin	9	2 A.F.B.	7	23
Essex	51	22 A.F.B.	65	114
Frontenac	1	1 E.F.B.	few	150
Grey	77	42 A.F.B.	150	758
Haldimand	4	3 A.F.B.	44	128
Halton	12	4 A.F.B.	31	164
Hastings	106	74 E.F.B.	1,132	1,245
Huron	2	0	0	0
Kent	19	3 A.F.B.	38	114
Lambton	22	7 A.F.B.	20	139
Leeds	7	0	0	0
Lincoln	20	4 A.F.B. 1 E.F.B.	27	105
Lennox	2	0	0	0
Manitoulin	3	2 A.F.B.	4	7
Middlesex	35	13 A.F.B.	111	351
Muskoka	10	2 A.F.B.	3	3
Norfolk	19	7 A.F.B.	24	122
Northumberland	61	30 E.F.B.	454	513
Ontario	49	7 A.F.B.	33	172
Oxford	21	9 E.F.B.	25	149
Peel	14	4 A.F.B.	11	97
Perth	39	9 A.F.B.	69	253
Peterborough	7	0	0	0
Prescott	55	5 E.F.B.	30	139
Prince Edward	62	32 E.F.B.	609	716
Renfrew	24	11 E.F.B.	201	438
Russell	16	1 E.F.B.	6	6
Simcoe	83	16 A.F.B.	79	402
Waterloo	16	9 A.F.B.	29	108
Welland	49	13 E.F.B.	117	436
Wellington	34	8 A.F.B.	48	263
Wentworth	21	5 A.F.B.	14	58
York	98	23 A.F.B.	308	617
Totals	1,164	406	3,786	8,692

It will be seen that 1,164 apiaries were visited, 406 of these were found to be diseased, the total number of diseased colonies being 3,786, the total number of colonies in diseased apiaries was 8,692.

THE DISEASE SITUATION.

Last year 41 per cent. of the apiaries visited were found diseased; this year only 35 per cent. of the apiaries visited were found diseased. When one considers that the inspectors only went to apiaries where they were practically certain of finding disease it will be seen that some headway is being made in the actual irradication of disease in addition to the large amount of educational work which is putting bee-keepers on a more independent footing with reference to this great enemy to their industry.

There is nothing specially new to be reported in the disease situation. American Foul Brood is being slowly driven back. European Foul Brood, on the other hand, is making very rapid progress in its spread over the Province. As we have often stated, nothing can check this but the Italianizing of the apiaries in the path of the advancing disease. We have done what we could to persuade bee-keepers to introduce Italian Queens, but it is very difficult to show a man the necessity of going to this expense before he has suffered actual loss on account of disease.

INCREASING EFFICIENCY.

A word might be said in closing in reference to the efforts we have made during the past season to increase the efficiency of inspection work and reduce the expenses. It is well known that the employment of local inspectors necessitates men who understand the disease and have experience enough to do inspection work properly and at the same time are able to leave home at the time the inspection work needs doing. From year to year we have experienced greater difficulty in securing men of this class. As a result we have been compelled to test some different system. During 1911 and 1912 men chosen from the student body of the Ontario Agricultural College and given a special training as apiary inspectors have been sent out to inspect apiaries in some Counties in the Province. The result has been quite satisfactory. It is true that there has been some complaint, but there has really not been so much cause for complaint of this system as of the old system of sending local inspectors. The main advantages of the system are that the inspectors are specially trained for the work. Second, they are under control. A farmer may hire 12 or 15 of the best men available to work on his farm and set them to work in his field, and if they will work under his direction good results will be obtained, but if each one does exactly as he pleases the farm cannot be said to be well managed and good results cannot be secured. This is exactly the situation in the campaign against foul brood in Ontario. No good results can be obtained until the work is so organized and the men so under control that they are all subject to direction from one central office, no matter who is in charge of that office, so long as he understands how the work should be done.

I have to report the loss by death from the ranks of the Inspectors of Mr. David Chalmers, Poole, who was one of our oldest, best known, and most respected Inspector and member of the Ontario Bee-keepers' Association. Mr. Chalmers, always outspoken, was of a kindly disposition which made himself loved by all the bee-keepers where his work was.

Another Apiary Inspector who has been taken by death during the past year is Col. I. B. Checkley, of Linden Bank. Col. Checkley had been an inspector only one or two years, but was much respected in the community where he worked.

THE EUROPEAN FOUL BROOD SITUATION.

In reference to the European Foul Brood situation, I have reports from our two leading Inspectors in those districts. Mr. F. E. Millen, who worked in Prince Edward County, reports as follows: "Most of my work this summer was in Prince Edward County, some of the County not having been inspected previously. European Foul Brood is evident in almost every section and has already reduced the number of bee-keepers very materially in those sections where the disease appeared two or three years ago. Consecon and the surrounding district provide a good sample of this condition.

"Where not previously inspected, very few bee-keepers realized that foul brood was present. I think the reason for this is that few of them made periodical, internal examination of the hives, and so the disease cleaned out the hive before they are aware there is anything wrong with the bees.

"A careful study of the bulletin on bee diseases and then an examination of the brood would save the bee-keepers many dollars in a little while.

"Two demonstrations were held in the county. These were well attended and appreciated. Foul Brood was pointed out, the symptoms discussed and methods and treatment carried through. The wax-press was also brought into use, and by practical demonstrations it was shown how the old combs could be turned into wax.

"Many of the bee-keepers are now Italianizing and seem anxious to rid themselves of the disease. The disease appears in a very virulent state and it will not be long before all the black bees are cleaned out of the County and the Italians taking their places.—Yours very truly, F. ERIC MILLEN."

Mr. Warrington Scott, of Wooler, who is the best authority we have on European Foul Brood, reports as follows:

"Dear Friend Pettit,—Your letter at hand asking for my report on the inspection work of the past season. In reply to your question, 'Are we making headway against Foul Brood?' would say decidedly *No.* European Foul Brood is spreading very rapidly. It now covers an area of fully three thousand square miles in the Counties of Hastings and Northumberland. In the Fall of 1909 it covered an area of only 100 square miles in Northumberland County.

"In reply to your question, 'Have you any suggestion to offer on how our methods of inspection might be improved?' I cannot say that I have any suggestions to offer. The only solution for the problem of European Fould Brood is to Italianize ahead of the disease.

"There is one apiary in Hastings County that was Italianized ahead of the disease. All the other apiaries of black bees in the neighborhood were badly effected with disease while this apiary was very little effected. However, the test will come next spring as to the value of Italianizing ahead of the disease in this apiary."

QUESTION DRAWER.

Opened by F. W. Krouse, Guelph.

Q.—What is the best way to control swarming in producing comb honey?

Mr. Pettit: It is too big a question to answer in a word, but, briefly, in comb honey production I believe the best way to prevent natural swarms is to produce the condition of artificial swarms by the shaking method.

Mr. Wm. McEvoy (Woodburn): I would rather hive one swarm than shake one. If there is any section honey produced that season you will get it from those swarms. My experience is that it is no more trouble to keep a contracted swarm. If they do come out, they will come out a double swarm, but jump them right back in the same place. I had more trouble brushing them off. Someone may be anxious to hear this. I would have given money to have had this experience years ago, and that is why I tell it. A dummy is simply a board the size of your frame. In about eight or ten days take out a couple of these dummies and put in what forms you are using. Do not fill them up at once. Keep them on and in a short time you will have your sections filled up. The longer honey is with the bees, either comb or extracted, the better.

Q.—Where is the best place to buy Italian queens?

Mr. Krouse: That is a pretty hard question to answer. I would say, buy them where you get the best.

Mr. Pettit: Consult the advertising columns of the bee journals.

Q.—Is it possible to winter a colony of bees, taken from an old-fashioned hive, by placing them in a movable frame hive, on drawn combs, after which they are fed 30 lbs. of syrup?

Mr. Krouse: It would depend on how late it was, I presume. The syrup would have to be pretty thick. You would not want as thin a syrup as earlier in the fall.

Mr. Sibbald: Mr. Alpaugh told me several times that he has taken bees in the fall from foul broody colonies, shaken them into empty hives, taken them home, fed them on syrup, and not only cured them of disease, but wintered them successfully.

Mr. McEvoy: I do not care if he was here, I will say that that system will not work out. I have had a long experience, and never could carry them safely through winter.

A Member: What makes the bees die early is brood rearing. If you can keep them from that—if you can keep your bees quiet—they will live longer.

Mr. McEvoy: In the system I follow, I shut out the brood rearing about the middle of September.

Mr. Pettit: That question as to whether there ought to be brood rearing in the fall or in the spring is a much mooted question. I knew an old bee-keeper whose bees got practically nothing after the middle or end of July. He considered it best if they got nothing in the fall, better if they were not getting enough to stimulate them to breed, so that they would simply stay quiet from October on through the winter. He considered that better than that they should be wearing themselves out raising a fresh batch of young bees.

Q.—How do you absolutely prevent after-swarming?

Mr. Krouse: I never had any trouble in that line. Of course, I use a bigger hive than most people.

A Member: With the extracted honey you don't expect a second swarm, but with the comb honey you are likely to have an after-swarm. I move the hive they come from after six days, and very seldom have an after-swarm. In case the hive is not moved I destroy queen cells after six days. You strengthen the swarm by that means. If you have an after swarm return them.

Q.—Can you pick the best queen out of an apiary by examining her brood?

MR. KROUSE: Not in my experience. Generally a queen that keeps her brood nest filled is counted the best queen. I have had queens that did not raise as many bees, and their bees were better honey-makers. I had a queen last year and her colony was exceptionally large, and yet in honey the lowest. You cannot pick out by the brood.

In watching your colonies going out in the morning and at night, you will find colonies that will work an hour later and go out an hour earlier in the morning. Those are the colonies that work best.

Q.—What is the reason for honey fermenting ten or twelve months after being extracted?

MR. KROUSE: It is put in too damp a place and your cans are not properly shut up. It would ferment also if extracted too soon; it would not keep ten or twelve months.

Q.—What is a pure Italian queen? Give her markings, also her breeding.

MR. KROUSE: I do not think I had better try to answer that question. (Laughter.)

MR. P. G. CLARK (Marietta, N.Y.): There is no rule for the color of an Italian queen. Color comes from selection of breeding. Pure Italian queens, imported from Italy, are mostly quite dark, and the yellow ones have come from selection in breeding in this country. I have never seen a yellow queen from the Old Country. They sometimes have an orange band on them. They are different from the black which are shiny and glossy. But whether they keep theirs any purer over there than they do here is more than I can tell. Maybe they get mixed up some. It is kind of natural to suppose that they are pure because they are imported from Italy. I have generally found them more vicious than our bees, so much so that I had to kill the queens. As a general thing they have three bands.

A MEMBER: You think by that they are all pure Italian queens.

MR. CLARK: All pure? No. That is a pretty far-reaching statement. You might say the same about Holsteins—no two have the same marking.

A MEMBER: We Canadians imported some bees from the other side of the line. Are we supposed to call them Italian bees or American bees?

MR. CLARK: You can call them American, if you like. When they get over here I suppose they would be Canadian.

MR. DADANT: In 1870 we imported hundreds of queen bees into this country. We found the bees from Italy always pure Italian. They differed in the shade. The leather colored bees looked so dark that there was some doubt as to the yellow band, yet they had it. Queens were nearly always of a leathery color, not very bright. The golden bees are American. The Italians do not breed as we do here. The bees are bought from the common people and shipped to this country. The Italian Society have taken pride in the purity of their bees. Italy is separated from the other parts of Europe by the Alps or the Tyrol, and those snow-covered mountains are entirely prohibitory to the transportation of bees into Italy. So there is a difference in shade as there is here. We see some larger, some smaller, and some darker; an experienced bee-keeper will notice it.

Q.—In shipping honey, where the cases have been tampered with and cans taken out, who should be the loser?

Mr. Krouse: The transportation company, I should say. I shipped some honey to the West two years ago, to a private party. There were seven 10 lb. pails, and in the transportation nearly all of these cans were half emptied, but the company made good; it was granulated honey. You could see where it was taken out. The company also took the next seven cans free of charge.

Mr. Pettit: I think the point is, if you are shipping f.o.b. the buyer is responsible for transportation; if you are shipping at a rate delivered, you are responsible for transportation.

Mr. Sibbald: If you ship f.o.b., the buyer has got to get after the transportation company; but if you ship delivered, then, if there is a shortage, you have got to fight the transportation company. However, should the transportation company give you a receipt when they receive your honey, it makes a difference. They are not expected to receive it if it is not in a condition to ship, and then they are responsible for it until it reaches its destination.

Mr. Holmes: I have had some bitter experiences. I considered it my duty to fight the transportation company. I got pay for the shipments that were lost entirely, but I can say to you at the same time it was a case of hope deferred making the heart sick. The transportation companies seem to require a year and a day to get a matter settled.

Mr. Kerr: Several times I have had honey tampered with on the way to the West. I sent a hundred pounds this year, and when it got there four cans were nearly empty. I had the box made so that it fitted on the lids of these cans; there was no possibility of them getting out. I wrote particularly: "This side up, with care." I had some peaches sent up from Chatham this fall. The way bill came, but the peaches never came. I enquired from the agent, and he said I would have to write the man who shipped the peaches for him to get after the company. Now, there is the question: Whose place is it to get after the company, the man who shipped the goods or the man who received them?

Mr. Pettit: I think the answer to the question is that if the seller ships them f.o.b., then the buyer is responsible for looking after the company, but if he sends it delivered he is responsible.

Mr. Byer: It is extremely unwise to ship honey in a liquid state to the West. It is very difficult to prove that it did not leak.

Q.—What is the best method of introducing queens?

Mr. Krouse: I have had a lot of experience in introducing queens. It is a good deal in the time of year. Sometimes you can introduce a queen with very little trouble, and people who had had a great deal of experience with bees can tell when they can put it in. In those cases I let the queen run in in the evening, but where you have not got experience I would follow the direction on the queen cage.

Mr. Clark: The best way to introduce queens depends on what season of the year it is. The best time that I know of is right now (1st November). You can put a queen in when they have not any young brood. It is then no trouble to introduce a queen.

Mr. Pettit: How would you get the old queen out?

Mr. Clark: It is easy. She is right in the centre, when it is warm, but I claim that October is the best time to introduce a queen, after the brood has gone. In the summer our method is to have a queen out three days. Others would put them in in seven hours or three hours, but I have always gone on the theory of introducing virgins between two and three days. In the long run we have found them the best. We introduced them in a separate cage, the queen alone, not her attendants with her, as they sometimes create antagonism that would not be there if they were not there. About three days after they have been made queenless is the best period to have them come in contact with the other bees. I do not mean by introducing, but have the queen released after three days, or between two and three days. If you have a very valuable queen I would advise shaking the bees themselves. In about five or six hours you can throw her in, place her on the comb, and the bees will accept her. Bees are queer things and at times no rule will work, but in the majority of cases it worked out that way with us.

Q.—What is the feeling of this Society regarding compulsory registration of bee-keepers?

Mr. Pettit: I think the questioner's idea is that every bee-keeper should register in the same way as all automobiles are registered, so that there may be control of them all.

Mr. Krouse: I think that is a question for the Society.

Mr. Sibbald: About the question of registration, it would help the inspectors if the people had sent in their names when they bought a colony of bees.

Mr. Pettit: I understand the nursery men in Ontario have to be registered for the purpose of inspecting nursery stock. I think it would be a fine thing if it could be accomplished.

Mr. Lowey: It seems to me that comparing it with nursery men would be more like people who buy a few fruit trees having to register. It would be bringing the thing too fine to say I should not be able to have a hive of bees without registering. I have been surprised to find out how many keep bees in our county and we did not know anything about it.

Mr. Pettit: The point that appeals to me the most is this: In advertising this Convention, we went to our list of bee-keepers, and sent a programme and a letter that we tried to make as personal as we could to every bee-keeper on the list with ten or more colonies of bees, and if any bee-keeper didn't get notice it was because we had not his spring report. The question is that, if the law compelled them to register, we would be able to help them more by sending literature and that sort of thing, and also when the inspector went out he would be given a list of all the bee-keepers and he could hunt out every little seed bed of disease around the neighborhood. When a local bee-keeper makes the statement that he was surprised to find out how many of his neighbors kept bees, how can we expect the inspector for two or three counties to know all the bee-keepers. That is the main object, to get them to register so that we can get to them.

A Member: I suppose it could be put into the assessors' hands.

Mr. Pettit: They claim they have too many questions to answer now.

Mr. Byer: If they get the bees on the roll you would be assessed for them.

Q.—What assistance other than "grant," would the Society be prepared to offer the Local Associations?

Mr. Krouse: Is there anyone here who could answer that question?

The President: I might say, as one of the Committee who waited on the Minister with regard to having the grant increased, we also discussed other points, and one of the things that came up was the location of bee-keepers. The Minister made the suggestion that we take the matter up with the Provincial Secretary. I think it was under his Department. I don't know whether there was anything done or not about it. He offered to give it consideration, to try and find out some means by which we can locate all the people that have bees. This matter of registration is only a means of keeping tab on those who keep bees.

Mr. Pettit: I have taken up this matter with Mr. Blue, in charge of the census at Ottawa, with regard to securing the names of persons reporting bees through the Dominion census. I was informed that they were too busy, but would gladly take the matter up as soon as possible. That was some months ago and I have not heard from him since.

The President: In regard to the question of a "grant," the nature of the assistance we could give the local associations is a difficult matter to determine. I suppose the object in asking the question is because there are so many affiliated societies, the grant, therefore, being divided up into small sums, they are not getting very much and feel as though they would like to get more. Now the local associations are affiliated, and their members become members of this Association, and in a sense we are bonusing them pretty well. Our feeling is that we cannot increase our donations any more until we get an increased grant from the Government.

Mr. Pettit: This man asks, what assistance *outside of the grant.* In answer I would say, at present speakers are sent to the Conventions of the local associations, and the work of the Honey Crop Committee is a very important work in helping bee-keepers all over Ontario. There are various other ways in which the local associations are being helped. It seems to me the next plan would be the co-operative selling of the honey. That has been discussed every year and has fallen flat. You all are too prosperous to go in for that, I suppose.

Mr. Evans: We had an interview with the Minister of Agriculture last year, with the object of getting more money. He suggested that the bee-keepers should pay some part of the inspection. That was done in other branches of live stock. I think this would meet the approval of the Government. I think the inspection could be carried out for about 10 cents a hive, the Province paying five cents and the owners of the bees five cents. I think then there would be less difficulty in getting inspctors, and we could thus get every hive in the Province inspected. At present the inspection is merely spasmodic. We shall never be able to meet the spread of the disease unless we can inspect every hive in the Province.

Mr. McEvoy: I beg leave to oppose that strongly. I do not think we should all submit to be taxed. Where is the taxing going to end. I am paying taxes to-day on my land and bees, and to bring in any other tax is too much.

Mr. Evans: There is a law in force providing for the inspection of fruit trees by which a certain number of men in any municipality do the inspecting and the municipality would have to collect the money.

The President: When Mr. Evans, Mr. Armstrong and myself went to the Department on that mission, to have the grant materially increased by a thousand dollars. The Minister of Agriculture, whilst he promised due consideration, and would like very well to increase the grant to that extent, gave us to understand we must not think we could have it increased $2,000 next year, and go on that way indefinitely. The money at the disposal of the Department of Agriculture was not all for that purpose, and we must show we appreciated it and be prepared to foot the bill to a certain extent ourselves. He thought it would be wise to see if the larger bee-keepers would not be in favor of having their bees taxed to some little extent. I do not think it would be a very heavy tax, and when you consider the inroads of the European foul brood I think it would be well to discuss the matter further. This comes along the line of the question of registration.

A Member: I would not have it understood that I would be opposed to paying my share of the tax. I think everybody ought to be willing to stand his share in the way that would be most effective. I only mentioned the matter because I know a good many bee-keepers are opposed to having their bees examined. The expense would be so insignificant that no bee-keeper who has the interests of his business at heart would object. I believe any competent inspector would go through a hundred hives and find out whether they had foul brood or not in the course of a day, and if his services were worth $5.00 a day it would be five cents a hive.

MR. MCEVOY: In New York State, where they had such a siege, Mr. Wright, Mr. Stewart, Mr. Stevens and Mr. West went through it and attended to more bees than we have got here. Why cannot we put on three like Mr. Armstrong, Mr. Chrysler, and Mr. Holmes and try it one year? If we cannot master it, then let the matter come back for taxation. I do not want to be taxed any more. It will keep up an army of inspectors and call for a big lot of money.

A MEMBER: In reference of the four inspectors in New York State keeping ahead of the disease, the fact of the matter is that the disease is going ahead of them all the time. Mr. Stevens, who is in charge of our end, cannot begin to get ahead of it. It started with a little fringe around Niagara River, and now it is over three or four counties.

MR. HOPPER: I support that motion because I believe it is a good thing. I base my attitude on the report of the Provincial Apiarist on the foul brood situation in Ontario. I think it is a good thing for me, and if it is it ought to be good for my neighbor. I want to have my apiary free from disease, so that my neighbor cannot say he has got the disease from Hopper.

MR. MCEVOY: Why not tax those who have got the disease. Make them sweat and not take it out of us who haven't got it.

MR. BYER: While I am not in sympathy with the main features of the motion, it is surprising the amount of sentiment there is around the country along that line. In my own township there are two or three men who have been impressing upon me all summer to push forward that movement at this Convention. I cannot conscientiously do it, because I do not think it will work. In the first place, it is a very hard matter to get capable men to go out and do work like that. In regard to doing home work, a number of people in Markham and surrounding townships have asked me to undertake the work around home, but I do not wish to have anything to do with it. Those who do inspection work would far sooner go away from home, as it is far easier to use your authority and do effective work at a distance than in your own township. It is very disagreeable to go into a man's yard, especially if he is not familiar with bee-keeping. With regard to the present inspection of apiaries, anybody is perfectly free to come in and inspect mine. So far as I know myself there is no foul brood in them. Personally I do not dread the American foul brood any more, but I do dread the other kind.

MR. J. P. MOORE, Springbank: I think the motion is along the right line, if there were some modifications to it. In my County of Middlesex, where I am situated, it is in, and has been, in nearly all the apairies around. I for one would be willing to pay for my share of what is in that motion if we had a man in the neighborhood to inspect all the bees.

MR. CHRYSLER: I am opposed to that motion. This gentleman says he is afraid of foul brood and would be willing to contribute. Certainly we all would be willing. This inspection work is educational work. Inspectors don't cure your foul brood, but instruct how to cure. If we do cure, we do it at the expense of the Government's time and by the favor of the bee-keepers whose bees we are inspecting. We must get this into our minds that if we get foul brood we must educate ourselves to treat it, or we will never get rid of it in any other way.

Mr. Lowey: I am glad to hear that, it has the right ring. We talk about paying for inspection. Why a man who cannot inspect for himself the European foul brood in three seconds shouldn't keep bees. He should be driven out. (Hear, hear.)

Mr. Couse: This motion of Mr. Evans is certainly a little farther than we have gone before. We have been fighting this thing step by step until we have got quite a number of inspectors. The question is have they done us any good, or would we be better with one. I believe that, if I had the township I live in to inspect I can do it for ten cents a hive. I am willing to be taxed that. I know the American foul brood; I do not know the European. I have taken the trouble to go to nearly every person in the neighborhood to tell them whether the bees were foul brood or not. I believe the more systematically you can get at it the better. I do not know of a township in the County of Peel that needs an inspector, because we all know it.

Mr McEvoy: I am taxed already.

Mr. Couse: None of us are taxed.

Mr. McEvoy: I have a business tax on the bees.

Mr. Harkness: This discussion is very interesting. There is no need of so much of this taxing. I am sure any bee-keeper in the Province, who is interested in the work as he should be, would not ask for any money to go to his neighbors and do anything in his power to educate them. (Applause.) I am doing it all the time and receiving nothing whatever for it, and what is more I do not want it. Let the bee-keepers take this matter to heart.

Mr. Lowey: I like the idea of municipalities having the inspector. This man speaks about going to his neighbors. I would gladly do that. I am a little out now by being accommodating. However, if I go to some of those men I would have to drive twenty miles. As Mr. Pettit says, we are working now with more inspectors and educating the people to be their own inspectors.

A member asked Mr. Pettit how many bees there were in Ontario.

Mr. Pettit: In answer to that, I would say that we estimated last year that there were about 300,000 colonies of bees—I don't think there are quite so many this year—because of heavy loss in the European foul brood districts. At that rate, supposing there were 250,000, at 10 cents a colony, it would mean $25,000, and even supposing we got half of that it would be $12,000, which is three times what we are getting at the present time. I made a strong recommendation a few years ago that we should inspect every hive of bees in the Province. We have not been able to do that yet. The more I know about the work the farther away it seems. I think there is too much stress being laid on the word "Inspector." Instructing is what we are doing; we are doing far more of that than inspecting. The keynote of education is what we must strike if we ever accomplish anything. We do not want to pauperize the bee-keepers of Ontario, and we do not want them to be sitting waiting for the inspectors to tell them what condition their bees are in. Lots of them who do not come to the Conventions do not see their brood chambers from one year to another. What we are endeavoring to do is to teach the bee-keeper to look into the brood chamber at least once a year, and to repeat again, with "every man his own inspector." If anyone has any practical suggestions that will be better than the lines on which we are working we would like to have them, but there are objections that I can see to everything that has been suggested.

In the matter of local inspectors, you cannot get enough competent men to do the work, as they will not leave their apiaries. A few might, but I have an idea that those few who have expressed a willingness to do it, if they started out as inspectors, and attempted to go into every apiary in their own or adjoining townships, they would be sorry they ever volunteered for that sort of thing. The ones who think they have so many friends among their neighbors, would find that going as an inspector to tell a friend there is something wrong with his bees is a totally different thing to visiting him and telling him how nice everything is.

MR. EVANS: I want to protest against the persistent statement made in this discussion that each man would have to pay ten cents a hive and hand it over to the man who inspects. It is only five cents, paid to the municipality.

MR. MCEVOY: We are taxed for our business.

MR. COUSE: How are you taxed? The facts are we are not taxed for what we are receiving to-day. We are letting the other pay taxes for our industry. Now, we are receiving a grant of how many thousand dollars, and are not receiving it from taxes of the bee-keepers but from other industries throughout the whole Province. (Applause.)

MR. MCEVOY: I am taxed for my land and for my bees. Several members said they were not taxed for their bees.

MR. DADANT: I believe some of the members present are evading the question. When the question is put are we taxed, it does not mean on our farm, our cattle, but are we taxed on our bees. We are not taxed as bee-keepers. In our country some assessors tax the bees; others don't. I have been put in a place where I was ashamed. An assessor came to me to assess my property, and he did not consider that bees should be taxed. I felt so ashamed—I had no cattle, sheep, corn in the crib of hay. I was not on a farm, but I had lots of bees and beeswax. My neighbors around me were all taxed. Well, I gave in my bees and have done so ever since. I think it is the right thing to do. I would not like to have people say "That man avoids his taxes." If we want help from the Government to see that our bees are kept healthy, how can we honestly evade paying taxes. Our bees should be taxed in the same way other things are taxed, and then we are entitled as much as anybody to help. (Applause.)

MR. HERSCHISER: Mr. Couse seems to be at a loss to find bee-keepers who are taxed. I have bees in Ontario, as most of you know, and am taxed on them. I am satisfied now, after hearing the discussion, that if all were taxed as heavily as I am there would be plenty of money to do all the inspection, and money besides. All you have to do is to have your bees taxed and the question will be disposed of.

A MEMBER: These men are taxed for municipal purposes only, not for bee inspection at all.

Moved by Mr. LOWEY, seconded by Mr. CHRYSLER, that the resolution be handed to the Committee on Resolutions.

A MEMBER: One man was quite annoyed because I went to examine his bees. He had been a practical bee-keeper all his days. The very first hive I opened was diseased. He had been selling bees and spreading it over the country, and yet he thought the Government should not send an inspector because he was a practical bee-keeper.

MANAGEMENT OF OUT APIARIES.—WITH COMPLETE OUTFIT AT EACH YARD, USING AUTOMOBILE OR HORSE FOR TRANSPORTATION.

MR. SIBBALD, CLAUDE.

I suppose the reason I am on for this number is because I became an automobile enthusiast last year. I purchased one in the spring and have been running around the country pretty fast all summer. I do not want to be biased and persuade you all to get automobiles, yet, on the other hand, I do not want to frighten you so that you will never get one.

In managing out apairies the tiresome labor seems to be in getting around. In our country it is very hilly, mountainous you might say. Of course our mountains are the only ones worth mentioning in Ontario. We have a mile of road on which, when you start down with the automobile you can turn the engine off, and if you don't keep your foot on the brake you will be going 50 miles an hour. I do not like to go more than 35 yet. (Laughter.)

To get down to the practical part. It takes me, with a horse, about an hour and a half to go to either of my two apairies. It is an hour and a half in the morning and an hour and a half at night, three hours of real hard work, harder, I thought, than any in the yard. Since we got the automobile we can get there in half an hour and back in half an hour. That is cutting off two hours a day of hard work and putting it into the rest column, if you like, or into the work column. Then if you have two assistants with you that, of course, makes about six hours labor saved in a day, which is quite an item to a man who is running different apiaries, in the busy time of the year. I estimate that six hours in the busy season should be worth anywhere from $6 to $25. If a man has a crop of white honey on the hives, and wants to get it extracted before the buckwheat comes, time is very valuable. If the bees are swarming, and he has lost control of them, time is very valuable to head those bees off. One day's waste means sometimes a hundred dollars. You cannot estimate how much it really means sometimes. A day's neglect will get an apiary pretty much upset in the swarming season, and you can scarcely get it settled for quite a while.

I have spoken to you about the speed, and the next thing, perhaps, you would like to know would be the cost. A man asked me, "How much does your automobile cost you?" I said, "I never keep any track of that," He replied, "Of course, that is the best thing to do, because what you don't know the mind won't grieve over." (Laughter.) The cost of an automobile is more than a horse, but it *is* more than a horse, too, and don't you forget it. I have put down here a few items that my automobile has cost me this summer. I won't profess to be exactly accurate. I had new tires on the automobile to start with. I had to get an extra tire $30. The gasoline cost about $45. I went about 4,500 miles, so that it cost a cent a mile for gasoline. It will cost you a little more sometimes, and sometimes not as much. If you had a level country it wouldn't cost you so much.

MR. MCEVOY: Do you haul your crop with it?

MR. SIBBALD: No: I have a honey house at each place, and as soon as I want to ship, I ship it from the nearest station, and have always engaged a farmer to do so. He takes the whole thing away and ships it to my address here in Toronto, or wherever I wish it sent.

I have been able to carry in this automobile any of the smaller things that were necessary throughout this summer, or small shipments of honey.

I had an idea when I started this that I would have to raise more money and do some more work to make it pay, so I started an extra apiary this year for that purpose, and out of 60 colonies I was able to get about $600 worth of honey. It took about $100 for the automobile to maintain and run it, and I have got $500 to the good out of that one yard this year. That can go towards cost of the automobile.

This summer was a bad season, very wet in our district. The roads were rough, so that I anticipate a great deal more pleasure and a great deal more use ordinary seasons.

The automobile is worth all it costs you. It is a pleasure to get hold of the wheel and whirl around through the country.

A MEMBER: Have you climbed up some of those clay hills in the wet season?

MR. SIBBALD: I didn't take a clay hill after a rain. If I was away I always started home. The motor goes so quickly that you can get home before the hills are very slippery. If you put on chains you can climb up a slippery hill. I do not think they are very good for the tires, so I do not use them very often.

A MEMBER: You do not raise comb honey at those out yards?

MR. SIBBALD: I have almost dropped the comb honey.

MOVING OUTFIT ON MOTOR TRUCK.

MR. ENOS FARR, LOW BANKS.

I suppose there are a great many who are solving the question of whether to use an automobile or a motor truck, or a horse driven vehicle, when transporting honey from one yard to another. I think there is as much difference between using a horse vehicle and a motor as between black and Italian bees. Perhaps the black bees in a good season will give you as good a crop as the pure Italian, but they cannot resist the European foul brood.

When you are through extracting in one yard, you do not have to wait half a day. In about an hour and a half, after I leave one yard, I can be extracting in the other. I have all kinds of roads to travel in one of my trips. Mr. Armstrong will bear me out in that. The first part is very good. I do not think the automobile is as good as an auto waggon. I bought an International auto waggon of the high wheeled type. I have never struck any hill yet that I could not climb on high gear. I have climbed the Grimsby Mountain and Sherbrooke Hill and it did not seem to slow it up a bit. It is just the same with a heavy load as with a light one.

For pleasure, of course, as Mr. Sibbald says, it would not do. You can use it, but it is rather too powerful for a real pleasure car.

My home is about nine miles from the nearest yard, and the other yard is 13 miles away. I lost a great deal of time going back and forth with a horse and rig. The waggon is very easily controlled. You can control it with one lever, and you simply drop it if you are going through a bad place. You drop your transmission and put on the foot brake. There is an emergency brake for your hand. There is no occasion for slowing your engine at a bad place. You can go in and out of a rut as easily as with a horse and rig. There is no fear of upsetting the honey tanks.

As I said before, I use a heavy outfit for extracting. I have a small extracting house at the different yards. I have one centrally located and a small one that I can transport from one to another, with a low wagon about six feet wide by 14 feet long. It is built of the collapsible form. You can fold it up and take it from one yard to another.

As far as hauling honey home is concerned, I have not done a great deal of that. My wagon can carry 1,600 pounds, and I think it can as easily carry 2,000.

As for maintenance, I think it cost a cent and a half a mile. For tire repairing it hasn't cost me anything. This is a solid tire type. I have mud chains and have been caught out in the mud. I have not struck anything I couldn't get through. There is no occasion for a bee-keeper to go out in the mud. I have a horse that I drive when it is muddy weather, and in this way I get along very nicely with the auto wagon.

This is a very poor season in our locality. In fact, buckwheat didn't yield anything worth speaking of; the clover was pretty good.

I would not advise every bee-keeper to have one, but I think when a bee-keeper is situated near a city, and has good roads, he could easily take care of another yard.

The motor wagon has this advantage over the automobile, you can haul your extracting outfit from one yard to another at any time of the day, whereas with the automobile it would be necessary to have an extracting outfit at each yard.

In my locality it is almost impossible to get help, so that I use all the short cuts I can. I think I can run three yards and my farm with the use of the motor wagon and extracting outfit. You can save enough time, I am sure, where you have good roads, to handle another apiary of bees, possibly 60 or 70 colonies, and you can use your motor truck in connection with your farm work.

My motor wagon will run 25 miles an hour. I run as fast as I care to ride over the country roads, and a great deal faster than a horse and rig.

An extracting oufit cannot be drawn by an automobile very well. Of course, Mr. Bainard says he uses a trailer. Possibly he could on good roads, but on my roads it would be impossible for an automobile to haul a load on a trailer.

Mr. Chrysler: One point about the use of a motor truck that has not been mentioned, it seems to me, is very important. I mean in reference to moving bees. There is no necessity for closing up hives. All you have to do is to load them up in the motor truck in the night time and go right off with your load. I moved an apiary this spring 19 miles, and I had all that could be piled into a four ton car. We started with the load at 12 o'clock and in two hours and 25 minutes we covered the distance.

A Member: How many colonies were you able to put on a truck like that?

Mr. Chrysler: I could easily put on a hundred colonies.

Mr. Farr: I have not had any experience in moving bees, but I intend to try it next summer to see how it works.

Mr. Krouse: I would like to ask Mr. Farr why he loads his whole extracting outfit and his utensils on a truck, making a whole load, instead of going out and having a lot of honey and bringing it home. Then you can save more time in my estimation, saving labor enough to establish another outfit so that you can have an automobile.

Mr. Farr: I think by the time you made the two trips, you save more time if you had a large yard by staying in your yard and having your honey extracted. I have the large high tanks for extracting. The next morning I take it in the tanks right to the shop. I do not lose any time going back and forth, except the one trip with the extracting outfit. In that way I think I can save more time than by hauling the combs and then moving back again. It would be real nice for a bee-keeper who lived on good roads, but, as I say, where I have bad roads that is impossible. I am a firm believer in loose hanging combs. They certainly would not work in any auto-truck from one yard to another. I have a store house at the central yard and don't leave the combs at the outer apiary.

MR. KROUSE: I have got as bad a road as any bee-keeper in Ontario. I have been hauling my honey home for years.

MR. DADANT: I would like to add my testimony in favor of doing the work at the apiary and in bringing the honey home as a saving of time. I have in one season, at one time, extracted from one to five thousand pounds in three days' work, and at the end of the third day on going back to the first hive extracted found that almost every cell had honey. If I had hauled my combs home I would have had to bring them back, or else I would have to have two sets of supers. I find the trouble Mr. Farr has mentioned when hauling loose hanging frames on rough roads. I think we save by going to the out yard. It may be possible to bring the combs home and make it satisfactory, but where you have six or seven it is much better to do the extracting at the yards.

I would like to say a word in regard to an automobile. I am too old to run one, but my eldest son has done so for five years. He tells me that when a man is new at the business it is like putting a new man with a new horse. When he gets through, at first, the horse is worn out. Start an automobile with a hard jerk, it will make a great deal of noise, a great deal of smoke, but will not do as much work as if you know how to do it. A man who is a good chauffeur, starts a machine noiselessly, gives it little strain, evades the rocks and uses less gasoline. So I believe that every one of you who have machines will save your machines, so that in the course of time you will prefer an automobile very much to a horse, because a machine stands more than a horse.

Another point I would like to mention, and that is I am in favor of having an extractor in each house. As we all know, honey extracts much more easily when warm. I had a small house in each of my yards, made of rough lumber, with a little lean-to roof. I have an extractor in each yard. All I have to do is to hitch up our little mare and start off with a load of cans, extract the honey, can it and take my load home at night, turn the key and everything was secure at those out yards until I go back again. I found no difficulty in taking care of 260 colonies alone, extracting 12 tons of honey in one year. So I am very much in favor, indeed, of having a little house and outfit at each yard.

MR. PETTIT: I wish we had more time for this subject that we have had before us, because it is a very important one, and yet I think some splendid good points have been brought out. In reference to the programme, I feel responsible for this one, and I am glad that Mr. Chrysler has taken up the division that appears without a name. I did my best to persuade one of our leading bee-keepers, who has been carrying his honey all home to one central establishment with a motor truck this summer, to stand sponsor for that subject, but he was not sure that he would be here. I have a letter from him stating that he has used the motor truck with remarkable success. It developed some features that he did not recognize before. He is very much pleased with the system of having everything complete at home. A great deal can be said on both sides of the subject, as to whether we complete outfit that we can load on a motor car and cart it from one apiary to another. We find in most sections of the country there are men with threshing outfits that go about to thresh grain. They haul their outfit from one farmer to another and know exactly how to set it up. They set up an engine and in a very short time they are threshing. The farmer pays so much for having this work done, and finds it much cheaper in the end than if he had a threshing outfit of his own. Mr. Farr is working along this line with his out apiaries. Instead of having a complete outfit at each apiary, he simply has the outfit so that it is easily taken to pieces and he puts it on his motor truck and hauls it from one apiary to another.

That brings us to another point. I have frequently advocated having sufficient supers to allow the bees to store up the crop on the hives, instead of extracting from week to week. Then with a portable extracting outfit the crop is taken off rapidly at the end of the season. It means a larger investment in equipment but is saving in other ways. On the other hand, where we have a central establishment as some of our friends have, we are able to have conveniences which could not easily be be moved, or duplicated at out yards. Much could be said by those who have made a success of taking their honey home to extract. Some people would rather be at home than away from home; others would rather be away from home. (Laughter.)

PREPARING BEES FOR OUT-DOOR WINTERING.

MR. J. F. DUNN, RIDGETOWN.

I have been asked to write a paper on "Preparing Bees for Winter." It is an old story, "The moss-covered topic that hung in the well." This is a meeting for advanced bee-keepers, and unless I have something new to tell you, the time might better be spent otherwise. I pack my bees before feeding them for winter. Any that do not need feeding are finished right up, and filled clear to the cover of the packing case. Those that need feeding are packed up to the level of the top of the honey-board.

I pack them early and feed them late. This year I finished feeding October 18th. To-day, November 10th, bees are gathering a little honey and great loads of pollen.

Our season is longer than in higher altitudes or localities farther north. The feed is so thick and the hive so warm that the bees have very little work, and it is soon capped over. Bees are in very much better shape to stand the rigors of our northern winters, as their vitality is not weakened with the strain to which they are subjected when fed thinner stores in cold hives.

Before placing the hives in packing cases, I run a piece of an old buggy spring in the entrance and pry the front of the hive off the bottom board, and shove in between the bottom edge of the hive and the bottom board the summer ventilation wedges, three-quarters of an inch high in front, and tapered to nothing at the back. This gives an inch and one-eighth space under front of bottom bars of the brood frame, insuring plenty of air, and prevents clogging up entrance with dead bees. I then place a strip one-quarter of an inch thick and two inches wide in which a notch has been cut three-eighths of an inch high, and as wide as I can get it in a ten-frame hive. I regard this wide entrance as a very great factor in successful wintering. After placing the hive in the outer packing case, I pour in planer shavings, packing them in tightly with the edge of a board, until even with the tops of the honey-boards.

I try to get my supers off early enough so the bees can seal all honey-boards tightly on hives that do not need feeding.

After the packing is in position at side I lay a piece of building paper, the thin black-glazed waterproof sort, that costs $1.40 per roll of 300 square feet, over the top of each hive, and tuck it down the outsides of the hives and about three inches below the honey-board, pressing the packing tightly against the turned down edges of this waterproof paper. On top of this I lay old newspapers and magazines. or any other sort of papers that are handy, to the depth of four inches up according to the supply at hand. After each layer of old magazines place a large paper over all to make as many dead air spaces as possible, tucking a large piece of paper down over ends of each layer, and drawing the packing tightly against ends of paper packing. I then pour in planer shavings until the packing case is filled. The planer shavings must be very dry. White pine shavings I prefer to all others. Forest leaves suit me very well, but as the object is to have as many dead air spaces as possible, shavings are preferred. When properly pressed down each shaving lying on another makes a dead-air space or nearly so. Wheat and oat chaff next in line of preferment. Sawdust and clover chaff are taboo. Two years' experience with clover chaff in an out apiary along side of other packing settled this matter with me. For the past six years we have packed nearly all our bees as above. I have been engaged in bee-keeping 28 years, about half of that time as a specialist. Experiments extending over several years have convinced me that absorbents over the cluster are not needed. All animals even to the highest man need water to sustain life. We are located on the Niagara Frontier, close to the south shore of Lake Erie, only 265 feet above sea level, and almost on the line between the 42 and 43 degree of Latitude, to be exact, 42.33.17. If there is any place in Canada where during the winter months an excess of humidity exists it is between the two great lakes on the Niagara Frontier. While it is seldom that the thermometer reaches zero, we have a good deal of cold, snappy weather. A change of 24 degrees in as many hours is very common, and 40 degrees change causes in the same time no great surprise.

But at the advent of clover bloom the rest were "right there with the bells on," then followed two weeks of the hottest weather I ever experienced. The clover dried up all to soon, but not before our rousing colonies had piled up an average of 100 pounds each, stacked one super over another, and scarcely any of it capped. something I never saw before.

One nucleus covering in the fall scarcely three frames wintered perfectly and gathered four supers of clover honey.

I should be glad to point out this hive with the supers on in a small photo of my apiary to any who might like to see it.

THE PRESIDENT: I would like to have some discussion on Mr. Dunn's methods. We have all been very much interested in his paper. We have another paper upon "Winter and Spring Management," and if you prefer we will have that paper and then discuss the points in both.

CELLAR WINTERING, AND SPRING MANAGEMENT.

R. E. L. Harkness, Irena, Ont.

You have heard the paper by Mr. Dunn, and I gather he winters his bees outdoors on the summer stands. I have to speak from the standpoint of wintering bees in the cellar. One man will have one way, another man another way. I am working under quite different conditions from Mr. Dunn. I am in the eastern part of the province, and we have pretty cold weather there. Mr. Dunn mentioned zero weather. At home zero weather is delightful. We are just enjoying warm weather when we get zero weather, but when we have weather that will run around possibly 25 or 28 below zero, for six or eight mornings in succession, it is quite a different proposition, as you can easily understand.

As for myself, I have not had much experience in wintering on summer stands, but at my own home I hope to try it—in fact, I am going to try it—but I am going at it very quietly at first, and not very extensively, because I am having such excellent results from my methods that I hate to give up a good thing, or something that I know is good.

In moving my bees from summer stands I have a contrivance that my man and I can carry. It will hold three colonies. This is a sort of carrier on small wheels, made out of old lumber. We lower our truck on a track down at the cellar. Of course we are very careful. I will start at one part of the apiary, and I will mention that in the spring when I am moving my bees I put them back in the same location. I think it is important that we put our bees back on their own stands, because I am satisfied that bees will remember their location from year to year.

Now, when we get the bees in the cellar, this is where I consider comes the important part of wintering. We know if we winter our bees well we get a large surplus—are almost sure of it—if we are in a location that will produce honey. So I recognize that ventilation is very important, but at the same time we must be very careful about the way we give this ventilation. I use a hive with the bottom board on a stand. There is a two-inch drop under my board, and the hive has a slanting front and the front has a hole opening. When I put my bees in I lift the colony off the bottom board and reverse it and set my bees on that. You can easily understand that you have a two inch space under your frames. Well, now, I will take off the quilt that is over the top, and in place of that I will lay one frame of honey flat over the combs, just putting cleats under to hold it up. Over that I throw burlap. That is the preparation in the cellar. We have perfect ventilation, providing our air in the cellar is pure, and we have no currents of air at all. We must avoid currents. I find a draught through the cellar or air from outside brought in is very injurious to successful wintering.

My bees are put in usually about the middle of November. They had one flight last week, but I do not expect they will have another till after the first of May. That seems a long time, but nevertheless it is a fact.

Any time during the winter that I see my cellar is getting a little too warm or close, instead of opening it up to the outside air I open it up to another room, and, by the way, I keep a thermometer there all the time and try to keep it constantly between 42 and 47. When I am afraid it is going to run up over the 47 mark, I will open my cellar door to an open room rather than to outside. In that way you change the air of the room, and at the same time you bring no draughts or any motion of air in on your bees. My bees are wintered in this way. I know you Western people will wonder when I tell you that my bees are there till the first of

May almost invariably. Last year I did remove them the 30th April, the year before the 3rd May, and two years ago the 7th of May, and even at that late date we go into my cellar quietly, and look under the frames and see a beautiful cluster of bees hanging there and very few dead bees, and there is no clogging of entrances, no shutting off of ventilation or anything else.

This is important: When we come to remove them from the cellar, as I said before, they are brought in rotation to the summer stands. I will start at a certain point in the cellar, and we put them back on the same stands, starting in the opposite and they go right back.

When we talk about bees cleaning house, and so on, in the spring, we need not have that if we give this space under our bees, because there will be nothing at all there that the bees will have to clean out.

We get them out, and the first thing I do after they are out a day or two is to examine them for strength. At this period they will have considerable brood, perhaps have three frames that will have a good deal of brood—quite a nice quantity, indeed. I consider it more than if my bees had been out for three weeks. During this period understand that your bees are very quiet. They are not consuming stores like they would on the summer stands. They do not go searching for food, and you can easily understand the benefits to be derived by keeping our bees quiet at this time of the year. Spring dwindling is almost unknown to me.

As I said, when I get my bees out I examine them for strength, and my strongest colonies I super at once. Many and many a time I put out my bees, and in an hour after they are on the summer stands the yellow legs were dropping in fast. This is the condition I want to see. I want them to go out and go right to work. I don't want to see them standing there day after day, going out and trying to get something and in bad days never returning, which is one of the main reasons for spring dwindling. I put on my supers at once on my strong colonies, and in the case of those that are not strong I wait. Again, if my strong colonies have a good deal of honey in them, and the weather promises good, I will either extract that out of the frame, and feed it back to my weaker colonies, or if I am rushed I give the combs. If I do that I feed for a few days, and then put on my supers at once after that. With young queens, if they are very prolific and the brood chambers fill up very fast, if I see that this treatment will not prevent swarming I will raise my brood combs which contain large quantities of brood to my extracting supers and usually drop empties.

A Member: Don't you think 45 or 47 is a little too warm for cellar wintering?

Mr. Harkness: I find if my cellar does not get over 47 I will not have any disturbance; the bees will be quiet and contented.

A Member: You speak of a possible ventilation from the cellar.

Mr. Harkness: From three to four years I tried to ventilate from the outside and quit it. I now ventilate it from another cellar.

Mr. McEvoy: What about the pollen?

Mr. Harkness: Well, they will gather pollen from the 20th to the 25th of April in the soft maple. That is about the first we have. Then that is followed by the hard maple. I may say right here that for several years I put my bees from the cellar and inside of a week I had quite a surplus from hard maple.

A Member: How much burlap do you put on the top?

Mr. Harkness: Two thicknesses of burlap.

A Member: What is the object of the comb of honey?

Mr. Harkness: It gives the bees more room and makes them more contented;

it adds stores, and I find that the bees will cluster up on that comb over the top beautifully and they get their food there nearly all the winter.

A Member: Did you ever try wintering them with sealed covers?

Mr. Harkness: I used to, but I don't do it much more. I like this other plan much better

A Member: Do you remove the bottom board?

Mr. Harkness: I turn it upside down. I would not like to remove the bottom board altogether, but in hives not constructed like mine I would put an inch block under each corner of my hive and would have the same benefit.

A Member: How many hives will be put in?

Mr. Harkness: I will put in a hundred in a cellar about 22 ft. long, 14 ft. wide and 7 ft. overhead. You can understand that with your cover off and this comb on the top you could not pile the hives on each other. To avoid that I build up a shelf and slide the hives on this.

Mr. Holmes: What would you do in the event of your temperature running up higher than the limit you speak of?

Mr. Harkness: I get sufficient ventilation from the other part of the cellar.

Mr. Dunn: Is the other side of the cellar ventilated?

Mr. Harkness: Not through March, as it did not get above zero, but later on in the season I ventilate that cellar. I open up the other part of the cellar and then I open the doors between my bees and the other cellar.

A Member: Is the other part of your cellar dark?

Mr. Harkness: I do not darken up the windows. I find my bees so quiet and contented that they do not leave the hives.

A Member: They do not mind if there is a light shining in the room where the hives are?

Mr. Harkness: You do not need to have much light. If I see the bees inclined to be restless, I will only open it at night and close it the next morning.

A Member: Your cellar is deep?

Mr. Harkness: And dry.

A Member: All above ground?

Mr. Harkness: About 15 or 16 inches above ground. It would be necessary to have the most of your cellar under the level of the ground, or you could not have an equable temperature. It is in my farmhouse, underneath the dwelling-house.

Mr. Pettit: It is in a cellar, practically under all the house, and you have one room large enough for the bees, and then there is another cellar from which you get ventilation?

Mr. Harkness: In constructing a bee cellar, where it is necessary to do so, I think it is important to keep this in mind. Of course, we all know it is impossible, nor would we attempt to store bees and vegetables and fruit and so on in the same cellar. There is no furnace in the cellar. There is a cement floor, but the walls are stone walls.

Mr. Pettit: I think you would get better results from a condition such as Mr. Harkness described than though you simply had a cellar large enough for the bees, and the bees were next the outside wall and more subject to outside conditions.

Mr. Harkness: When men came to me and asked me about the cellars I told them how they could be easily constructed by buying a few feet of lumber. They were not satisfied and built outside cellars and they are not satisfactory as a rule. My cellar is very dry. There should not be moisture on the wall.

MR. PETTIT: I saw a splendid arrangement. A room was built inside a cellar, with walls and ceiling, and there was a foot of space above the ceiling of this inside room, between that and the floor above, where about six or eight inches of shavings or sawdust was placed, and the room was lined with building paper. The bees wintered perfectly, and they were not subject to outside changes of temperature.

MR. HARKNESS: It is going to be pretty hard to have first-class results if the outside temperature is going to cause the inside to vary. We must have an equable temperature for cellar wintering; it is very essential. I can easily understand that such a cellar as Mr. Pettit described would be excellent. It would practically do away with the wet and moisture.

A MEMBER: Do you consider it of more importance to have an equal temperature and no ventilation?

MR. HARKNESS: But I had ventilation.

A MEMBER: Only from an outside cellar; you did not have circulation.

MR. HARKNESS: You can get ventilation without circulation, without a draught, and that is what we are after. Very few of us will sleep with our windows closed in this modern age. I have my window open pretty nearly the winter through and have perfect ventilation, but I will never have a draught because I put up curtains to prevent it.

MR. CHISHOLM: I winter my bees in a cellar. It is partitioned off from the main cellar, and I can put a hundred colonies in 12 ft. by 9 ft., with a row on either side and I tier them up on top of each other. I have a reversible bottom board, a three-inch conductor pipe that runs from the outside down through a window into the cellar, and if my bees want a little air I have a way of opening up the partition to allow a little air in from the other cellar. I have five deep, and as a rule, one year with another, I bring them all out.

MR. HARKNESS: What time do you remove from the cellar?

MR. CHISHOLM: About the 20th of April, when the soft maples are showing up, but I have had them out as early as the last day or two of March. I have had them in as late as the 4th of May. It would be owing to outside conditions when I take them out, but I watch closely and do not put them out until we have something that they can gather.

MR. HARKNESS: Up to the middle of March do you require much ventilation?

MR. CHISHOLM: Some seasons, but I get it from the other part of the cellar. I can open that to the outside air, if I wish, but as a rule it comes through another way, through the dining-room.

A MEMBER: I believe Mr. Harkness says the cellar was 32 by 14 by 7. This cellar has an area large enough to winter 400 colonies of bees, which is a circumstance that these gentlemen ought to take into consideration. I don't believe we can winter without ventilation, any more than we can sleep in this room without the windows being open.

MR. HARKNESS: I think if you keep your bees perfectly quiet until the first of March there is very little air consumed by those bees.

MR. DUNN: In our apiary that we kept until four years ago, six miles in the country, there was a large cellar. I cannot say I ever saw the walls damp. There was a natural spring that would flood it sometimes. I never saw any ill results from the dampness. We wintered every year some of the bees outside. We wanted to be ready with part of our bees anyway. You know the matter of taking out these bees in the spring is largely a matter of locality. I think we are nearly a month ahead. As soon as we saw the outside bees bringing in the first pollen out came the cellar bees, but someway or other those that we wintered outside were in better shape than those we wintered inside. I suppose in some of the northern localities it would be different and that the cellar is a good place to winter bees; they consume less store, but I think in our localities we can afford a little extra consumption of stores when our bees are in better shape wintered outside, so as to gather any crop that comes on.

Mr. Harkness: I consider this wintering is a very important subject, and I hope in the future to give the outside wintering a good trial in my locality.

A Member: You say you keep your bees perfectly quiet up to about the 1st of May, you have your cellar perfectly dry; you have perfect ventilation so that it must keep dry. When you take your hive out you have about three combs of brood. What causes those bees to start brood rearing in the proper time corresponding with the outside bees? Another thing: I always thought bees would need water to start successful brood rearing. If the cellar is perfectly dry, and the bees perfectly ventilated, where could they get the water there, and what causes them to start brood rearing?

Mr. Harkness: I always make it a point to have enough stores for my spring. but I find that the less I tamper with my bees the more satisfied I am.

Mr. Lowey: I think this matter of ventilation is a very important one. Mr. Dunn says his bees do so much better wintered outside than inside. I think outside air coming in on them is disturbing. Last winter I ventilated something like Mr. Harkness.

Mr. Harkness: That is the point. It is very essential that no outside air strike our bees directly. Just the minute it does we are going to have disturbance. I have found that out from bitter experience. My apiary has at the north of it an eight acre orchard. It is on the east side of a hill, and the farm buildings are on the west side. I have a very fine hedge on the east side, so that it is naturally protected and I do not get any wind.

Mr. Holmes: There have been a good many very fine suggestions, but there is another suggestion that I fondly hoped some gentleman would bring forward in the way of ventilation. Of course, you will agree with me that ventilation in some form is an absolute necessity. We find that where a considerable number of persons are gathered together, and the windows are all closed, we look for ventilation. but we do not break the windows from the bottom; we open them from the top: or, better still, have ventilation overhead. My suggestion is this: a three-inch pipe running up through the floor right over the bees and connecting by an elbow with the pipe right at the back of the stove, and better still if you have two stoves and connect that to them you have a continual draught taking the vitiated air out of the cellar. This we have followed with good success, and I recommend it to you with the hope that you will fully endorse it.

Mr. Harkness: Do you not think with that ventilation you are giving it is practically all that is required? You do not open outside windows with that ventilation?

Mr. Holmes: No; enough air will get in around the crevices.

A Member: I believe you have touched upon one of the most important questions I have had the privilege of listening to in this Convention. I have had some experience in regard to my bees, and have noted what conditions have brought about the best results. I would prefer to winter them at 34 degrees F., with a steady stream of fresh air from the outside, and I will have my bees 100 per cent. stronger in their vitality when I carry them out in the spring. I believe the gentleman who has given us this valuable paper has something to learn about ventilation.

I would not want a cellar that would give us a temperature of 34 degrees through its walls without the actual air itself, because that would be a death trap. Give the bees plenty of fresh cold air; never mind the thermometer, throw it away.

The President: We have with us this afternoon a very important person, and I don't think there is any part of the proceedings that is going to give me as much pleasure as to have him with us. He is one man who is doing a great deal not only for the bee-keeper but for the cause of agriculture generally in the Province. I think the work is going on as never before, and I am sure he has entered into it with all his heart. What adds still more to the pleasure is the fact that I have not only known him in his official capacity but also have a personal acquaintance with him. In fact, we are almost neighbors—live in the same community. It gives me the greatest pleasure to ask Hon. J. S. Duff, Minister of Agriculture, to address you.

ADDRESS.

Hon. J. S. Duff, Toronto.

I am sure I feel very much flattered at the kindly reference to myself by your esteemed Chairman, my warm and personal friend, Mr. Nolan. Coming as we do practically from the same neighborhood, knowing Mr. Nolan as I do, and watching as I have the interest that he has taken from year to year in the work in which you are engaged here, the matter of the development of the apiary interests, I made up my mind that when you selected Mr. Nolan as your presiding officer you not only made no mistake, but selected a man whose habits are as typical as those of any man I know of the bee itself. Do you know of anything more industrious than the bee? I was thinking as I was coming along the streets of the little busy bee, we used to read about in the old school books, that improved each shining hour. and I believe that description might be applied to Mr. Nolan: and, after all, it is pretty true of everything and of every line of work.

Supposing a stranger came into Toronto and got hold of some of the morning papers, he would see something about the Bee-keepers' Convention, and the Horticultural Show, and meetings of the Women's Institutes, and he finds there are a series of conventions being held. It reminds me somewhat of the situation today in Europe. We find the old Turkish Empire, that for centuries has been able to go along and pretty well do as they liked, but to-day they are dismantled, their armies have been routed and they are at the feet of what are known as the Balkan States, a series of smaller communities who could not any longer endure the treatment that had been meted out for centuries at the hand of that old empire. They had a common cause and co-operated together so that victory has been theirs.

You, in your work, and the other interests that I have alluded to in their work, in this city this week, are on lines peculiarly your own; but in the long run get them all together, and you will find they are allied very much, and the great goal you are aiming at in all these lines is greater success, better work, better results. In all of that, from my heart, I wish you God speed.

I do not know very much about apiary work myself. I remember when I was a little boy we had bees on our farm, but it was before I had anything to do with the management. I remember we had some old box hives with some cross-bars in them, and I think there came a very severe winter, with frost every day, and whatever happened we have never had bees since. The thought came into my mind coming along, "Can there be anything done—and, of course, if there can you are the people to do it—to get our farmers in a sort of semi-general way to go into keeping bees in a small way? That is, that they would have, say, three or four or half-a-dozen colonies. I am not speaking from a commercial point of view at all, but I sometimes have the thought occur to me, perhaps it is not possible to do it, but I rather think it is. I have had several conferences with men like your President. I know there is a great deal of difficulty in taking care of bees, that you are up against the ravages of European Foul Brood, etc., but, after all, you are just in the same position as any man in every line of agriculture to-day. Everything has its enemies. There has been a great deal of harm done by the excessive wet season to our potatoe crop in Ontario this year; in some sections they have very few potatoes. We have some people here and there throughout the Province who take the precaution to spray their potatoes with the ordinary blue stone mixture, and their potatoes are in many instances absolutely free from rot and disease, and many portions very largely so. I am speaking of that to show that in every one of our lines of agriculture we have these enemies to contend with, and the strong man is the man who has to go through a few battles. The strong men of this country, the men who made this country grow before we, some of us, were born, and who played such an important part in making it great, were the strong characters—men and women who were up against the hardships of pioneer life and met them without a flinch, realizing "The mountain is there, but we will get over it." They did get over it, and the mountains of difficulties were removed, leaving us the happy surroundings we have to-day, and still we find there are mountains to surmount. Your work in connection with this Association, I assume, is very largely to better understand how to get over the mountains of difficulty in the work in which you are engaged, and I want to say on behalf of the Government of which I have the honour to be a member that as far as we can assist, consistent with all the obligations that are upon us, you have our very best wishes. We have had from time to time different members of the Bee-Keepers' Association come to see us. We do not usually give altogether everything that is asked—not but what we would like to. There is no disposition on our part to be niggardly about public moneys, but we have to disburse them and take care of them as a public trust, remembering the fact that we have only a certain amount to divide up to the best of our ability in the discharge of responsibilities which are ours, and I am glad to know that we have been enabled at least to help out the work in which you are engaged.

I assume that there are gentlemen here from almost every part of this Province. I assume that you are here from the east, west, north, and south of this magnificent heritage which is ours. Supposing you were not able to do anything particularly beneficial with reference to the work in which you are engaged in heart, I think it is worth while for you, gentlemen, from the different points of this magnificent Province to meet and rub shoulders, and get acquainted with one another. It enlarges your vision, and you come to think that this is a far greater Province than you had any idea. That is one of the thoughts that has been greatly impressed on me ever since I became a member of the Government. Prior to that, once I got through my Parliamentary duties, I was very rarely absent from my own home. Like many of you, and many other men in the Province, I was a very busy man, taking care of work on the farm, and I am sufficiently fond of work to enjoy it. I did not go about; I did not know the Province. I only knew the locality where I had spent my life, practically speaking. But when I got about in the election contests, and in other ways that become the privilege of a public man, and got into the west, east, north, and south, then the greatness of this Province of ours dawned on me, the magnificence of its resources, in a way that not all the flowery speeches that were ever heard and the cleverest articles that could be written would be able to unfold to me. It has dawned on me very often since that it is a magnificent thing for the rank and file of the people that they should have opportunities of meeting as you are meeting, in order to exchange views as to the conditions in your own localities, because very often the work in one locality differs very much from the work in another.

MR. EVANS: We have listened with a great deal of satisfaction and pleasure to the address of the Minister of Agriculture, and I would like to move a vote of thanks to the gentleman for coming here to-day and giving us this instructive address. I was one of the Committee ordered by this Convention to go to him and ask an increase of funds. It is not very pleasant to ask a man for money, but the honourable gentleman met us in the kindest way, and has treated us well. His presence is an honor to the bee-keepers of Ontario.

MR. HOLMES: I take great pleasure in seconding the motion. It is certainly most pleasing that the Minister of Agriculture should find time from the multifarious cares that devolve upon him, and must of necessity take his very last moment, to come into our gathering, and not only that he should grace our Convention by his presence but the message he conveys to us on this occasion is most pleasing. He comes to us with words of cheer and encouragement, and tells us that when we approach his Department that we need not be bashful, but that we will always find the door ajar, and we may come in and ask what we will and to the extent of his ability it will be granted. I have very great pleasure in seconding the motion that the best thanks of this Association be tendered to Hon. J. S. Duff for his address.

THE PRESIDENT: It is with great pleasure I convey to you, sir, the thanks of this Association.

HON. J. S. DUFF: I scarce know what to say in acknowledging your very kindly worded resolution, but I have this to say that I appreciate it to the fullest possible extent. I wish to say one word more, and that is this: I may be a little wrong, but in my judgment it is the duty of public men entrusted with the interests of a great Province such as ours, or even if it was a smaller position, say, in the township council, where it was my privilege to serve for a good many years—as far as opportunity will permit to meet the people. I would be recreant to the trust reposed on me if I did not as far as possible take opportunities such as this of meeting with the people of the Province, coming as they do in various ways to discharge various duties. While I appreciate the vote of thanks, yet it was really not necessary. I want to tell you that it has been a distinct pleasure, a veritable delight for me to have the privilege of saying a few words here this afternoon. I thank you.

THE DISTRICT REPRESENTATIVE AND HOW HE CAN HELP THE BEE-KEEPER.

A. D. McINTOSH, STERLING.

I can hardly say that I feel at home among the bee-keepers from the standpoint of a bee-keeper. As some of you know, I never did keep bees, and all I know about them is the little bit I have learned through meeting with such men as Mr. Pettit, who have been through our district, and also through listening to a few lectures I got at College. However, I am down to talk to you on this subject.

As District Representatives of the Department of Agriculture thirty young men are out to-day doing everything they can in connection with the different branches of Agriculture for the farmer. On going through Hastings County, I noticed casually that we had quite a few bee-keepers, and meeting with one who is very frequently seen in Toronto, Mr. Caverley, he led me to believe there was a line of work for me along the line of bee-keeping. So I got him to put me in touch with Mr. Pettit, and through him I secured the names of a number of bee-keepers in Hastings County. It had dawned on me that there was a much larger field than I had ever hoped to find in this particular direction. I started out to see some of these men, to find out the condition of their apiaries and to ascertain whether they needed any help along the lines of bee-keeping. I set about the task in an indirect way. I didn't know how I could help them personally, so I thought the next best thing was to get somebody else who could help them. Through the willing help of Mr. Pettit I secured a number of speakers to come down to the Bee Institutes, and as a public man I have had some honours conferred upon me by Mr. Pettit and your Association which I hardly deserve not being a bee-keeper at all.

The only way I can help the bee-keepers is to secure for them men of wide experience, men of considerable knowledge of apiary work, to come into our midst and meet the bee-keepers in a way they have never been met before. It was certainly a great delight to me to have Mr. Pettit, particularly at one of our demonstration bee meetings out in Hastings County. We had a number of practical bee-keepers there, and had also a very severe case of European Foul Brood to deal with. As I noted the masterly way in which Mr. Pettit and his assistant went about the work, telling people how to meet the disease and answering innumerable questions, it seemed to me a vast amount of good was being done.

The District Representative has a splendid field to help the farmers along this line by organizing such meetings as I have indicated—Bee Institutes, I think, they are called—and having the practical demonstrations, and I suggest that whoever may be called upon to answer the questions and demonstrate to the farmers should take a liberal quantity of up-to-date bee supplies, in the way of hives and supers and all the other paraphernalia connected with the bee business. I would like to see very much among the bee-keepers of our county particularly, and I have no doubt it is the same in many other counties, an improvement on present conditions. We have poorly laid out apiaries and there is practically no business system about the work. If they have a good honey crop they take it as a God-send. Should Mr. Pettit, as Provincial Apiarist, or anyone present, be interested in trying to get the District Representatives to work up a greater sentiment among the bee-keepers for more business-like practices, I think of no better way than to hold those bee demonstrations in the summer, and take a liberal supply of bee paraphernalia along, and any literature you can place in their hands, and then follow that up with meetings in the winter in which all kinds of problems will be well discussed.

The District Representative is confronted with tasks of a great many kinds. He is supposed to be a teacher of agriculture, to give live stock demonstrations apple box demonstrations, and demonstrations on orchard pruning, demonstrations on selection of seeds of all kinds. His duties are innumerable, so that unless you place the matter before him in a way in which he feels he can get the farmers together quickly, and without a great deal of trouble to himself, he will not do much. If you bee-keepers are interested in your fellow bee-keepers, as I believe you are, I think that you have the key to the situation, and I tell you that the Bee Institute and the bee demonstration is the way to do it.

I have not been eminently successful at all in getting our Hastings bee-keepers to increase and go on in the good work of bee-keeping. As many of you are aware, we have been very severely afflicted, particularly this year, with the European Foul Brood, and many of our people say, "An Inspector came and looked at my apiary, but he did not go there and look at those two or three hives those other people have, and I believe my neighbor has got it. What is the use of my keeping my apiary clean?" The system of inspection seems inadequate. Whether anything further can be done I am not in a position to say.

The District Representative, if he understood bee-keeping, would be in a position to go out and help the bee-keeper personally. But most of them, I understand, are in the same position as myself; they do not understand the practical side of bee-keeping, and being in that position the next best thing they can do, as I said before, is to call in those who are practical men and look for liberal assistance from both the Government and Bee-keepers' Association.

A member asked Mr. McIntosh if there would be much difficulty in getting the statistics of the number of bees in Hastings County.

Mr. McIntosh: I think not. We are in a position to go and see personally the apiaries of all those whose names we have, and when we go to see them, or write asking them for the names of other bee-keepers in their vicinity, after getting that information, we are not very far astray in our estimates of the total number of colonies in the whole county. We can get a large amount of information which cannot otherwise be secured, I suppose. We can get by circular letter, or by going to the people personally.

Mr. Couse: I am quite satisfied that in the County of Peel, if we could get a census of all the bees in the County, a District Representative could do us a great deal of good. He could practically find out every apiary in which there is foul brood in the county in a very short time. If every Representative understood bees, it would not take very long. I understand you don't do all the work yourself; you have assistants.

Mr. McIntosh: We often have as high as eight assistants not for bees though.

Mr. Pettit: I may say that I was responsible for asking Mr. McIntosh to come here to-night, and as I was responsible for some of the other numbers on the programme I may say that each number was put there for special purpose, and I asked Mr. McIntosh to come for a special purpose. I wanted the bee-keepers to realize that there are about thirty County District Representatives. They are called District Representatives because originally they had two or three counties to look after, but very few have more than one county now and in some of the counties they are asking for two. These men are placed in the counties to be the representatives of the Department of Agriculture in the county to bring the work of the Agricultural College and of the Department of Agriculture directly to the farmers of the county. The representative is, to use an expression, the man on the spot for whatever the people in the county want. I find that the majority of the District Representatives are specializing in some one thing in their county, and I find that a great many are specializing in fruit—especially apples. It is easy to make a showing of apples. In quite a few of our counties it is a good business to work up. Very few so far have taken up bees very earnestly. They are interested. Mr. McIntosh spoke of having taken some lectures in Apiculture at the Agricultural College. The first class which I had the privilege of lecturing to will graduate this year, so that none of the representatives have had the lectures since I started there. In my lectures I have emphasized the work of the Association, and the importance of bee-keeping in the Province, and every representative that I meet expresses an interest in bees, and speaks of the interest that is taken by his people; but says that he knows nothing about bees. The result is that other things he knows something about, and lines in which the persons engaged are a little more insistent than the bee-keepers, are getting the attention that the bee-keepers in a great many cases should have. I find, for instance, in some of the counties where there is a representative, the County Bee-keepers' Association hold their session and forget to notify the District Representative of the meeting which he would like to attend. In some cases they forget there is a District Representative. He has not had a chance to come to the convention or send a representative. In other counties, as in the case of Hastings, Northumberland, Prince Edward and some of the others, we find the representative taking an active part, getting the bee-keepers together, forming an Association, becoming the Secretary of the Association, forming a connection between the County Organization and the Government, such as the Provincial Organization has with the Government, and putting the bee-keepers locally in line for receiving more direct Government assistance.

I feel it is a privilege to us to have Mr. McIntosh with us, and it opens up a new field for receiving the help that is being spread out by the Department of Agriculture for the agricultural community, getting a little more of that for the bee-keepers without going directly to the Minister of Agriculture, and asking for some more money. Money is being spent, the officers are in the counties, the men are there, the machinery is there, and it is just a matter of getting them to work for us.

BEES, POULTRY AND FRUIT.

J. W. Clark, Cainsville, Ont.

I am not in this business for fun. I know some people are keeping bees for for amusement, and some are keeping poultry for amusement. I do not know that there are a great many growing fruit for fun. They largely use it for consumption.

The combination of those three, I believe, is one of the best a bee-keeper can have. I have been keeping bees thirty years, poultry for sixteen or seventen years, and have been seven or eight years in the fruit business.

At one time I was a farmer and bee-keeper together, a combination that does not work well; because when I was drawing in hay and it was going to rain the bees would swarm, and I either had to lose the bees or look after them and I usually left the hay. It is a combination which, I consider, does not work very well, for a bee-keeper to be a farmer. He is bound to neglect the bees. But when it comes to poultry and fruit I do not think there is any need for neglect, because the bees, as we all know, do not require much attention after the flow is over. The main work is possibly a little time in the spring and when the flow is on and then preparing for winter. The poultry require attention all the week round; fruit does not. When I say fruit, I have no reference to a lot of small fruits.

I am not a large bee-keeper. I have about sixty or seventy colonies of bees. I might be able to handle 100 all right, by using a little more labor along with my other work. I do not think I would like to handle any more with the other branches. I can work the combination of the three without one interfering with the other a great deal.

We all know that poultry need feeding, but they do not need feeding every day. They want it every day, but you do not need to feed them when you use the hopper method of feeding them. I feed them every week by that method. I have the poultry in the orchard. The bees are also in one corner. As I say, I use the hopper, and let them help themselves. They will grow that way better than they will through feeding by hand. When I want to water the chickens, I take a barrel and have a barrel full. I have a top on the lower side of the pan, and drop the water slowly. I raise every year about 500 chickens. I do not raise chickens for the market. There is not enough money in it for me. Our American friends have lots of money for fancy poultry. You cannot drop into it at once; it takes time. When I started I commenced with good stock, and the result is that I have been able to go to the other side and win prizes at the big shows. However, you cannot do this all at once. If you are going into the poultry business I would not advise you to go into it as extensively as I have. If you get started to exhibit at some of our poultry shows you will learn what we want for exhibition stock, and it will only be a short time until you will get a reputation for yourself. There is money in market poultry, but you do not make it as fast.

I make more money out of poultry than I do out of bees or fruit. My poultry receipts run up to about $3,000 a year. I only raise about 500 birds. They are not all exhibition birds by any means, because we have always a certain amount of culls that we have to sell for market purposes. However, we have quite a percentage of good ones for which we are able to get fancy prices.

Then there is quite a good profit in selling eggs for hatching. If you have a reputation as a good breeder.

As I said, the poultry and the fruit can be worked in if you take this system of handling your poultry, when you are busy, with the hopper system of feeding and water. The spring is the busy season, but the bees don't require the attention then. When the bees want attention that season is over. Before the hatching season comes on I endeavor to get my trees pruned. I hire some help. We have factories in Brantford that employ thousands of men. They make implements and machinery and make a profit. I said to myself, "If these men can hire labor and make a profit why cannot I?" I employ two men the year round on 25 acres, and when the rush comes on in the apple season I have seven or eight men. I make money by doing it. The manufacturer makes money and so will anyone if he will use his brains and utilize other people. Now, I have my poultry in the orchard and I contend they do not hurt the fruit at all. In fact, I think it does good, because they pick up a lot of insects that infest our fruit.

This year I raised 500 chickens on five acres, and picked 900 barrels of apples on that same piece of ground. You can figure up for yourselves how much money there would be on that. I also had the bees on the same ground. I went into raising a couple of acres of raspberries and currants, and those other small fruits, but I found they came in when the bees required the most attention and I cut them out. I would not advise anybody to go into too many small fruits when they have bees, but the apples, plums, pears or fruit like that work in well together.

Of course, you might say that when you have a lot of fruit like that it takes too much labor. True it does take a lot of labor, but you make a lot of money out of it. That fruit of mine realized me nearly $2,000 off five acres. Then I have the chickens and bees besides. Where can you get a combination under the sun, unless a gold mine, that will return you more money off a small piece of land. Everybody could not get that return all at once, it would take a bit of time, but there is a gold mine in that combination if it is managed properly, and the proper principles are adopted in handling it.

Now, as to my bees I do not give them as much work as I should. I would get more honey if I gave them more labor, but I manage them so that I get a good return from them. This year, when the clover did not give a very large yield, the basswood came and it helped us. I got about 3,300 lbs. from about 50 colonies. In the spring I was building a house and did not give them the attention they should have or I would have got more. I considered that fair for this year. Other years I have got much more. I did not give them very much labor. I only had a few swarms. I gave them lots of room. I do not have much trouble with the bees swarming and they don't give me a great deal of labor.

I know I would possibly get a larger yield of honey if I would devote all my attention to those bees, but I would consider if I was going to spend all my time on bees alone I would want at least 200 hives to make it pay. I consider my time worth considerably more than $500 a year. I want something that I can make more money out of, that I can use my brains in making money as the manufacturers do. I thought one time, when I quit the farm, of going into bee-keeping alone without the other branches, but when I figured out that I would have to hibernate during the winter I felt I must have a combination of something else with it, and that is what made me branch out in these other lines. A man who is specializing with bee-keeping, and doing that solely, no doubt would not want to venture out in these other lines. He could keep poultry in a small way, and possibly make a few dollars in that way without much labor, and he would have something to keep him busy in the winter months. I would advise that.

Of course, the fruit entails—the apples especially— quite a lot of labor at the picking and packing time. We have been a little over four weeks with a gang of men putting up those 900 barrels of apples. There is a rush at that time, but the bees do not need any attention practically at all at this time of the year. If you get them fed up before the rush comes on, then after the apple rush you can pack them for the winter.

It is necessary, of course, in connection with the poultry to look after the cleanliness of houses. Very often there comes on a rainy day and my men cannot do anything. Then I set them to this work of cleaning out the poultry house.

Mr. Hopper: I would like to ask Mr. Clark if he would recommend every bee-keeper to specialize in poultry?

Mr. Clark: We might have too many poultry specialists. In answering that question, I would say, that largely depends on the amount of bees you have and whether you have an inclination towards poultry or not. I would certainly say, by all means keep some chickens. I know from the market end of it they are profitable.

Mr. Byer: Do you think that anybody who intends to go into the poultry business should attend the Agricultural College?

Mr. Clark: If you know nothing about poultry go and take a short course.

A Member: Do you thin your fruit on the trees.

Mr. Clark: I try to. I would thin every tree if I could get the labor to do it; and next year if I cannot get labor for $2 a day I will pay $2.50 or even $3.

A Member: What breed of poultry do you find the best?

Mr. Clark: I have my special liking, of course. My choice is the Orpington, but keep any breed you like. I would say, keep a utility breed. There is a better market for them and they are better layers.

Poultry keeping is like bee-keeping, it requires special study, and a good many people have an idea that all you have to do is to put some hens in a house and throw some food at them, and they will thrive right along. A commercial traveller came to my place. He had recently got married and his wife objected to him being on the road so much. He thought it would be a good plan to go into poultry keeping. He told me he had about $3,000 which he was willing to put in a plant and install poultry keeping. My first question was, "Do you know anything about it?" He replied, "No." Then I said, "Can you afford to lose that money?" "No." "Then," I said, "don't touch poultry keeping." He couldn't see it that way and argued with me for quite a little while. He thought all he had to do was to put up good buildings, keep them clean and feed the chickens. Hundreds of people go into poultry keeping with that idea. There are as many failures in poultry keeping as in any other industry.

Mr. Sibbald: When the hen does lay in the winter time she sometimes eats her eggs.

Mr. Clark: That is all in the way you handle them. When I first started poultry keeping I had that same experience. My hens started laying and every one of them I thought was a cannibal for eggs. They would eat all the eggs they laid, but they don't do it now. I handle the same breed of chickens, but I know how to handle them. There is something wrong with the way you are feeding your hens when they eat eggs. The hen is craving for something. Sometimes it is for the want of egg shell. If an egg gets broken in the nest and the hen eats it I know she won't do the same thing again if she is fed with what she requires. If you are feeding grain alone, the system of the hen gets heated, feverish, and she knows she wants something else, some animal-like food to counteract it. The only thing she can do is to go to the egg for it, and you cannot blame the hen. When do we find our hens doing the best? They lay the best in the spring months because they get green animal food. Now, they cannot get this in the winter, unless you supply them. If you cannot supply green grasses, etc., you can substitute. We have lots of green food you can feed to them. Last year I bought from some of my neighbors several frozen cabbages. You would be surprised to see how soon the hens would devour a green cabbage. They required green food and some form of animal food. If you have beef scrap, give it to them. I do not recommend too much. If you can get buttermilk, it takes the place of animal fat and we have no better egg food. If you have it give it to your chickens, feed them with green food and grain, make them exercise for it by throwing it down on the floor, and if you have your pullets hatched out in April and May, and get them into winter quarters the 1st October, I will guarantee (if you are feeding them well) you will have an abundance of eggs in December and January, but it is all in the management. Keep your hens reasonably clean.

There is all the difference in the world in the ability of the hens to produce eggs, just as there is in cows to give milk. We have some strains of fowls that are good layers and some that are very poor. If you go and take a short course at Guelph you will learn in a very short time the difference. Professor Graham has a laying strain that are fine egg producers. He has individual hens that have laid consecutively 67 eggs, little insignificant pullets, in the cold weather, too—in December, January and February. So there is a wonderful difference in the breeds of poultry in the production of eggs. If you are going into egg production, and intend to make money out of it, you should get a good laying strain to start with, and get it from the College at Guelph. If you have to pay a little more it will benefit you in the long run. There is a great field for it. They cannot begin to supply the demand at the College, and if some intelligent person would get this strain and use the trap nest, you would have no trouble in selling your eggs at a dollar and a half or three dollars, and you can sell every bird you raise and a great many of the males at a handsome price. I believe the bee-keepers could do it and quite easily, too.

A MEMBER: Do you feed your chickens with beef scrap?

MR. CLARK: I would not give over 10 per cent. of beef scrap; I would prefer the buttermilk, if I could get it.

A MEMBER: How often do you feed it?

MR. CLARK: I feed it every day.

MR. PETTIT: I think that point of taking a business view of employing labor is the best point you have given the bee-keepers.

MR. CLARK: I consider it is. I built a house for one of the men on my place, and I bought another house that I am going to put another man in—a married man. Hired help, properly managed, is the best investment you can make. Our manufacturers are making all kinds of money out of the labor they employ. Why cannot the farmer do it? He is too much afraid to pay the price. I have a neighbor who cannot get a man. Why? Because he will not pay the price. I had no trouble in getting seven or eight men to come to my place. They came to me because I was paying good wages. This other man would not pay over a dollar a day for doing his work; he thought it was enough, and he could not get them. He is neglecting his work and is losing $5 a day. He could be probably making that by paying a man $1.50. Too many of our farmers, fruit men and possibly bee-keepers are doing the very same thing.

A MEMBER: How would you do if you could not get them for love or money?

MR. CLARK: I do not know where such a person would live. Put an advertisement in the papers and offer a big price and you will get your men. Look at our big contractors who employ thousands of men. Where do they get them? It is the money they are after. Of course, if a man does not advertise, or let it be known he wants men and is willing to pay for them, they won't come to him.

A MEMBER: They are pick and shovel men. I heard you say it needed brains.

MR. CLARK: I use the brains and I let the men use the pick and shovel. I do not care whether it is a pick and shovel man, if he can do the work I tell him to do he will suit me. If he does not do that, I want him to get away. The point is to have your work so systematized, simplified and organized, that you can employ comparatively cheap labor. You do not need skilled labor for everything, because you have your work simplified.

A MEMBER: Do you use an incubator, and what kind do you consider to be the best?

MR. CLARK: Yes, I use them and I use different kinds. I am not here to advertise any incubator, but if I was going to buy another incubator I would buy the moisture machine. I am not throwing any slurs on the other machines. They hatch well, but I believe you will hatch better chickens if you have the moisture pan system. There are lots of other machines that will probably produce more chickens, but you do not get them to thrive as well. With my incubators I have the natural gas, and have them all running with my gas hot, and my brooder house is heated with gas.

A MEMBER: How do you feed the buttermilk?

MR. CLARK: Put it before them to drink. It may take a little time for them to get used to it. I want to say a word about raising fancy poultry. Possibly some of you have the idea of going into that part of it. A great many people have the idea it is a very easy matter to raise fancy poultry, but it is not as easy as it looks. If you are going to get birds for exhibition they need a little special feeding. If you half-starve the birds, I don't care what color they are, you are going to have inferior specimens. I have been selling eggs for some time, and have had lots of people write to tell me that they can not get a bird worth 50 cents. I know there is something wrong in the way those birds have been fed. If you half-starve the bird, you are not going to have a good color, shape, or anything else. If that bird has not sufficient green food to make the feathers develop properly, you are going to have a poor specimen. Then there is a lot to learn in getting a bird in shape for the shows, or for shipping in the pink of condition. If a man gets a bird from you and does not treat it right, it is not your fault if it is injured. If he gets the eggs from you and does not treat the chickens right after they come out it is not your fault.

A MEMBER: Do you ever use the hot water system?

MR. CLARK: Yes; I do not think there is much difference.

THE PRESIDENT: Mr. Clark's address has been very interesting, and he has given us a lot of information that we appreciate very much. Nearly all of us have some poultry.

QUESTION DRAWER.

Q.—One hundred colonies, wintered out of doors, must be moved by May 1st, 1913. When shall I move them?

MR. NEWTON: I would say move them before putting them into winter cases at the present time, or else leave them till removing from the winter cases in the spring.

A MEMBER: Do you think it is too late in the fall to move bees now?

MR. NEWTON: Not if in the winter cases.

A MEMBER: Would you move them two or three weeks from now?

MR. NEWTON: I wouln't care to do it.

A MEMBER: Would you consider them all right if they don't take a flight after they are moved?

MR. NEWTON: I would sooner they would have a flight. However, I don't think half a mile would disturb them a great deal.

A MEMBER: I saw bees moved 75 miles on the train. It happened they were moved the 1st November, and they did not get a flight till spring. They were wintered out of doors. They wintered very well. I would not defer doing it.

A MEMBER: Why would not you put them in the winter box?

MR. NEWTON: I think that you can move them easier before you put them in the cases.

A MEMBER: Would you move them 40 or 50 miles?

MR. NEWTON: I would if I had to, but this question mentions half a mile. If it were 40 or 50 miles I would not be particular whether you put them in cases or not.

A MEMBER: I think there is a point right there. If they are not likely to get a flight, if you are only going to move half a mile, when the first snow comes would be the best time. They would forget about their old location pretty well by spring, and they would move far easier on sleighs than on a wagon.

A MEMBER: They are in individual packing cases now. They can be handled all right, each one in a case.

Q.—Is it possible to control swarming when using a hive containing only eight Langstroth frames, and if so how can it be done?

MR. NEWTON: That is quite a lengthy question for this evening. It certainly can be done with a Langstroth hive. The after swarming can easily be controlled by the removal of the hive.

Q.—Will bees winter well in a house above the grounds?

MR. NEWTON: That, I suppose, would probably mean a boarded house, probably no dead air space, but it is not a safe place to attempt to winter bees. I would not advocate any man putting bees in a place of that kind above the ground, because you cannot regulate the temperature in such a building. I would prefer cellar or outdoor wintering.

MR. PETTIT: At the same time there are quite a number of bee houses in Ontario made with a thick wall, and the owners claim successful wintering.

Q.—Will bees winter in a house above ground of lumber and packing, with sawdust about 12 inches thick on the side and over the top below the roof for winter bees?

MR. NEWTON: That is a somewhat similar question. When I read the first question it carried me back to the days when I learned bee-keeping. In Mr. Hall's experience he had three places to winter bees: one in the cellar under his house, one in a building with 18 inches of sods on bottom, top and sides, and one in a cellar above the ground. The cellar below the house was the best winter quarters that we had, the one above the ground came second, while the one that was built with sods was almost a failure every year. So much so that he discontinued any putting of bees into that house, because the temperature, even with the 18 inches of sods, could not be regulated.

MR. SIBBALD: The animal heat of the colonies of bees will heat a building above ground. In the spring with the air and sunshine they get restless and come out and millions of them are lost.

A MEMBERS What thickness of shavings would you put around a hive to pack for winter.

MR. NEWTON: Three inches on the sides. I would put more on the top. I think a foot of packing won't hurt on the top.

MR. SIBBALD: It is not necessary if it is planer shavings.

A MEMBER: What depth of leaves?

MR. SIBBALD: A foot.

MR. FARR: In reference to this bee-house, I think the point is illustrated by Mr. Brown's remarks, and the same point was illustrated in the talk we had today. In one way it is easier to winter bees in the north-eastern portions of Ontario, as they have the same temperature all winter.

MR. PETTIT: We are testing material that has been used in other lines. It is called "Cold Storage Felt." It is an inch thick, and authorities on cold storage tell me that an inch of that felt equals four inches of planer shavings. It is not a cheap packing. It costs five cents a square foot but it makes a nice convenient package for packing and storing away in the summer. We are giving it a good testing.

Q.—What about moving bees without being inspected?

Mr. Newton: I think that to those who were present yesterday when Mr. Pettit read the law on the Foul Brood Act it became very clear. An owner of bees can move his bees if he so desires. I do not think it is right for a man to move diseased colonies into another man's neighborhood, but I do not think anything in your law can say he cannot do it. He could not sell them, but if he were the owner there is nothing to say that he cannot move them to a different locality.

Mr. McEvoy: I take exception to that. If I was inspector, and these bees were not cured, and he was going to move them to another part, I would forbid the removal. I would say, "Here, I told you to cure them; you cure them now, or I burn them."

Mr. Newton: You might enforce it that way, but the law does not say so.

Mr. McEvoy: You have that power under the Act.

Q.—Is it possible to feed in winter in the cellar, and how?

Mr. Newton: I would say, yes; it is quite possible. Three years ago I had three colonies. I put a quart jar of syrup on them and looked at them every week or so, and they took down food all winter, came out successful and passed the spring and gave me a good crop of honey. If hives are short, I think the jar on the top would be as convenient as my other way.

Q.—Will the boiling of honey taken from diseased bees make it absolutely safe to feed?

Mr. McEvoy: Yes, if it is thoroughly boiled.

Mr. Newton: I do not think that is good advice.

Mr. McEvoy: The best place for it is a hole in the ground.

Q.—Would you recommend the mixing of buckwheat honey with sugar syrup for wintering, where no disease exists?

Mr. Newton: There would be nothing against such a thing as that. Buckwheat honey makes grand winter store.

Q.—What effect will the long-continued wet and cold weather have on the wintering of colonies?

Mr. Newton: I was thinking myself personally it might be a benefit. They have not had a chance of getting out and wearing themselves out in the way they would have done providing they had the opportunity. Of course, there are a great many old bees at the present time that are eating up stores, but I do not think that will be any great detriment.

Q.—Is it necessary for young bees hatched late in the fall to have a fly to winter well?

Mr. Newton: We always maintain that colonies of bees that have had a fly before going into winter quarters will come out more successfully. I do not know that it is really so. We have known in some cases where bees have not had a fly and they have wintered successfully. I would prefer that they would have a fly.

Q.—How early in the spring can queens be imported in safety?

Mr. Newton: I think you could import queens in the middle of May to the 1st of June and have good success.

Q.—Where can I buy choice Italian queens?

Mr. Newton: We had the same question in the box yesterday. I was thinking of some queens that I bought near home. We had Mr. Elliott, of Strathroy, some three or four years ago branch into the queen-rearing business. I was fortunate enough to get some of his stock. I was sorry he could not see his way clear to continue the queen-rearing business. He certainly had good bees, very prolific.

Q.—How do you drain the honey from cappings?

MR. NEWTON: My capping can has a screen about a foot or 16 inches from the bottom. I uncap in that and stir it up fairly well, and the honey runs through. After that it is either washed or run through the sieve, which takes out the balance.

Q.—Would you fence your bee yard with a tight fence on all sides? Is it necessary on the south side?

MR. NEWTON: In selecting an apiary one of the main things is to choose a well-sheltered place. My mind goes to one yard in Middlesex County, fenced on three sides, and I can assure you it is a very pleasant place to be in when the bees are working on a windy day. There is no draught whatever, and I think unless your place is sheltered a fence would be a good thing. In my own place we have good windbreaks on the north and on the east, but not on the west. We do not get very sharp winds from the west, except from the south-west, and then it is at a season when it is not bad for the bees. If I was building a fence I would put it all around.

A MEMBER: Woudn't that cause too much heat?

MR. NEWTON: Not in the yard I refer to; it was very pleasant work. In fact. the sides of the fence, I suppose, were eight feet high, and that cast a kind of shadow over the yard. It was not a strong heat.

Q.—What is the best method of making increase, and when is the best time to do so?

MR. NEWTON: I think in making increase I like the method of making nucleus hives, if it is in the swarming season, which I think naturally is the best time; if you want increase and your hives are in a shape to swarm, if you allow them to swarm and get what money you can from that, get your old colonies, break them up into eight nucleus, gradually keep filling them up and as soon as you have no use for the bees that are hatching in the other colonies take out and you will soon have a good colony. I raised from one colony I had a surplus of 180 lbs. I could have done that with many in my yard at that time of the year.

MR. HERSHISER: Almost all my increase is artificial increase. I make it after this manner: I look through my yard and select a number of good, strong colonies. I go through the yard and gather up brood and make up a storage hive, and a few days afterwards after the brood is occupied and need no more attention I make nuclei out of this and give them a queen.

MR. NEWTON: I don't know whether the next question was put in as a laugh on myself or not.

Q.—Is being stung by the bees a remedy for rheumatism?

MR. NEWTON: I would say no, after having the experience of a year ago. I lay in bed with rheumatism for five months, and I have got stung enough, goodness knows. I know that the sting of a bee has no effect on myself personally.

A MEMBER: There are several kinds of rheumatism. I know of one man in our neighborhood who had rheumatism very badly. His legs, arms, and knees were affected. He was building a wire fence and a swarm of bees came along and lit on the fence. He had heard that their sting was good for rheumatism, so he got some bees and put them on his legs and arms and got a splendid stinging. He let them sting as much as they wanted, and up to the present he has never been bothered with rheumatism. (Laughter.)

MR. SIBBALD: Is he alive?

A MEMBER: Yes.

Q.—If sugar is fed and extracted, is it syrup or honey?

MR. NEWTON: Syrup.

Q.—I had three colonies turn out to be fertile workers. What should I do with them?

MR. NEWTON: I think you had better shake them off and let them go. They are not worth bothering with.

MR. MCEVOY: Hold on;; you fix up a good nucleus and introduce a queen.

MR. NEWTON: I would sooner shake them to the corner of the yard.

A MEMBER: I had one this year and tried to introduce a queen and lost three queens. I could not get them to take the queen.

MR. SIBBALD: Another plan is to set the hive aside, set the nucleus on the stand, and then occasionally, as you notice it or think of it, put one comb at a time from the first worker colony into the nucleus.

MR. NEWTON: Here is a question I will give to Mr. McEvoy.

Q.—What is the best and easiest way for a honey producer to re-queen? He usually does it every year.

MR. MCEVOY: Do you mean to make a success in every queen?

MR. NEWTON: It doesn't say success. It means what is the best and easiest way for the honey producer to re-queen.

MR. MCEVOY: I think I'll turn that over to Mr. Clark.

MR. CLARK: No, sir; you have tackled everything else, so you might as well tackle that.

MR. MCEVOY: I kill every queen of every colony every year about the 1st of July. Eight days after I go the rounds, take the cells out, and if one has not come up good, is not a good feeder, I take the queen cell from a good one after going the rounds of the yard. Ten days after I come around. I have some still coming on, but there is one over there missed. I take brood filling and I introduce a queen from there and put it in that, and after it has been in that awhile taken off and set aside. I introduce a queen and take it to this one that is queenless and shake those bees into it; they don't kill that queen.

MR. NEWTON: I am sure that is quite easy .

MR. CLARK: That is why we didn't want to give it away.

MR. NEWTON: I cannot see any way to decide the next question, except by asking for a show of hands.

Q.—How many bee-keepers present, who winter on the summer stands, would be prepared to endorse Mr. Dunn's method of preparation? Will it prove successful in all localities?

MR. NEWTON: I do not know that I could answer that. It would have to be the bee-keepers in this Convention. I do not know that we have any reason to doubt Mr. Dunn's paper in the least. Personally, I took great interest in listening to his paper, and was so much taken up with it that, as I still have a few colonies that are not fully prepared for winter, I intend to place them in the same position as Mr. Dunn suggests and I am going to give it a trial.

MR. JAMES ARMSTRONG: I might say a word along the line of Mr. Dunn's paper. It was my privilege to go through his bees a year ago last spring. He was preparing them in the way he told you do, and he had not a weak colony in his yard.

MR. NEWTON: I look over the audience and I do not see Mr. Dunn present. I do not think it would be fair to put it to a show of hands.

A MEMBER: Don't you think the locality would have something to do with it?

MR. MCEVOY: Take that away down, and it wouldn't work so well.

A MEMBER: I do not think where I am it would work at all. I have tried it and there were hundreds of drops of water on that quilt.

MR. CLARK: What did you have on top?

A MEMBER: In those hives I had about eight inches of chaff.

MR. CLARK: He had paper.

A MEMBER: He was very plain about having it air tight.

A MEMBER: In outdoor wintering leave the entrance wide open.

MR. NEWTON: That is the important point, I notice. He has an entrance the full width of the hive and about an inch deep, and he can force it out of the entrance; whereas if it is only a narrow entrance it has to be forced out and that has caused the drops of water.

A MEMBER: In my case the entrance was a half-inch deep.

Q.—How shall a new beginner detect a queenless colony?

MR. NEWTON: It is very easy on opening the hive. The actions of a queenless colony are far different from a colony that has a queen. The moment that you give a puff of smoke to a queenless colony they go wild in a moment. A hive with a queen is quite the reverse. They do not scatter. You can tell by the sound also of a queenless colony—by the noise they make—which is different from that of a colony that has a queen.

MR. CLARK: About the queenless colony making the noise. if they had brood there and had started queen cells, they would not make any noise more than if they had the queen. They would make that noise if they were hopelessly queenless, had no method of getting a new queen. If they have brood it is hard work to tell.

Q.—Are glass jars considered better feeders than the Miller feeder?

MR. NEWTON: I would say no. Glass feeders are all right, but I like the Miller feeder.

THE PRESIDENT: In the north country we live in a pretty cool locality. The nights are cool. We always find the bees take the syrup more readily in warm weather. The best feeder for either spring or fall, with us, is the 10 lb. tin, with the top perforated full of holes, probably 75 holes, perhaps a little larger than the lead in a pencil, filled with syrup up to its top. Turn it upside down and set that on the quilt in which there is a hole. They took down 20 lbs. of that syrup in the first ten or fifteen hours.

MR. NEWTON: There is only one disadvantage, they fill those things full of comb, but it is an easy matter to clean those out. It is the same priniciple as the jar. It is a very easy matter to get rid of the bees. When you are done feeding you touch the bees and they fall down.

MR. NEWTON: I will read two short questions, and then we will quit.

Q.—Does successive boiling darken wax?

MR. NEWTON: It certainly darkens wax, and it kills wax. It is a very important question; that is why I did not like to lay it on the table. Boiling wax certainly takes the life out of wax. Wax should never be boiled, but gradually heated to a melting point. It will darken it also when you boil it.

Q.—Which hive gives the best results, the large or small one?

MR. NEWTON: That question has often been before us, and I do not think it has ever been answered; I doubt whether it ever will.

THE PRESIDENT: We have had quite a little intermission this morning. The directors at their first meeting usually have a lot of business to transact. They transacted a great deal to-day and most of it was very satisfactory. Part of what they did I didn't altogether approve of. One thing was that they insisted that I should be retained as your President for the next year. (Applause.)

You have had a good convention, the order was splendid. You have had a good attendance and I am very proud of the assistance and encouragement that I have received as your President. I felt that with Mr. Byers as your next President you would have a better man, and we would look forward to another year. Mr. Byers was very modest and said he would rather have another year in the Vice-Presidency.

BEE BREEDING.

F. W. L. Sladen, Assistant in Apiculture Experimental Farm, Ottawa.

Bee breeding is a much wider subject than queen-rearing.. It relates to the improvement of the bee. Surely none of us can doubt that the bee can be improved, when we see that practically all domestic animals and cultivated plants have been improved more or less, and also that bees vary a good deal in their most valuable qualities! It is pretty evident that the real reason why bees have not yet been improved to any extent is that in their case the first condition for successful breeding, namely isolation, has not yet been obtained. In England it is probably impossible to get an isolated mating except on high moors, where the climate is unsuitable, but in this vast country of forest and prairie, as yet only partially settled, there must be many places where such stations could be established. Where buildings are new and scarce and trees are small or absent wild honey-bees have probably been unable to find a home. Moreover, and this is most promising, the climate of Canada is eminently suitable for bee breeding. It is a fact that a large part of Canada that is not yet settled has a better climate for bee mating, measured by the number of days above 70 degs. in the summer, than most parts of England. As I stated in a recent article in the *Canadian Bee Journal,* a spot near Fort St. John, on the Peace River, has 50 days with a temperature above 70 degs., while at Dover, England, where my bee breeding work has hitherto been carried on, there are only 31 such days.

There cannot be much question as to the qualities we want to improve. Disease resistance probably comes first. Fortunately only one disease looms large in Canadian bee-keeping, namely, European Foul Brood, or, as I have called it in England, Melting Foul Brood, to distinguish it from the ropy form known here as American Foul Brood. European Foul Brood has recently spread enormously in Canada and causes immense loss, but I should like to point out several features about this disease that are distinctly encouraging. In the first place, according to present ideas, it does not attach the bee directly, only the brood. The best known cure for the diseases, is to do nothing more to a colony than to reduce it to the condition of a newly-emerged swarm, placing it in a clean hive with new frames fitted with starters of foundation. In Ontario so excellent are the conditions for bees and so plentiful is honey, given a good locality and average weather, that after this was done at the Central Experimental Farm, Ottawa, on June 8th, 1910, the colonies produced an average of over 70 lbs., of honey per hive in spite of a drought that dried up the clover. May we in Canada never suffer from that insidious disease of the adult bee known as the Isle of Wight disease, that during the past few years has wrought so much havoc in England, and also certain parts of Germany and Switzerland, and for which the only remedy seems to be complete destruction of the apiary.

But the most encouraging thing in our fight against European Foul Brood is that the Italian bee is more or less resistant to it. Fortunately Italians have other excellent qualities. They are prolific, good tempered and in the high temperatures that prevail in Canada, good honey gatherers. Indeed they have not a single really bad trait, and it is pretty clear that this is the best breed for us to concentrate our efforts for improvement upon.

Now there are Italians and Italians. Even in their native countries, Italy and Switzerland, they differ in different districts. In addition, there are various breeds of Italians produced as the result of breeding them in Canada and the United States. It seems to be a question whether breeding has yet improved the Italian bee and it seems that results that cannot be beaten are still to be obtained from bees closely related to queens imported from the best districts of Europe.

Acting under the instructions of the Dominion Entomologist, Dr. Hewitt, I have brought over and introduced to the Apiary at the Central Experimental Farm at Ottawa, five pure Italian queens from Italy of a strain that I have found to be highly resistant to European Foul Brood in England, and if they turn out well, we are hoping to bred a large number of queens from them, some of which we hope will be available for distribution. Some of these queens will be sent out as virgins with clear directions how to introduce them to nuclei specially formed to receive them. Bee-keepers who receive these virgins will be recommended to get them mated with drones from their best Italian stocks.

To return to the subject of isolated mating stations. Ideal conditions for such stations could probably be found at many of the stations on the new railways now intersecting the north. Having ascertained that no bees exist in the neighborhood of the stations selected all that it is necessary to do is to transport there a drone-breeding hive and a number of baby-nuclei containing the virgin queens. The bees could be placed in the care of a resident and he could if necessary be shown how and when to feed the nuclei. For continuous work it might be found best to have the nuclei sent back to the home apiary as soon as the queens are mated and to replace them with new nuclei, though some system of removing the queens and introducing ripe cells in their place might succeed better. Introducing virgins to established nuclei is not satisfactory. Too many are killed. If the honey producing conditions are sufficiently favourable, not only the mating but the actual breeding of the queens could be carried out at the isolated station, the breeder residing there.

Before we can hope to improve Italians we must learn to maintain them in their purity from generation to generation, and have proof that we are doing this. An individual that looks pure is not necessarily so.

A great advance in our knowledge of heredity has been made during the last few years and important fundamental principles have been established. Each individual develops from two marrying cells called gametes, and its nature depends on the nature of these gametes. A remarkable property of these gametes is that they are pure in respect of any simple character that shows itself in the individual and when the individual comes to produce further individuals their gamete are pure in respect of these characters. We must conceive of these gametes as carrying a large number of factors for all sorts of characters that appear in the individual. Confining ourselves for simplicity's sake to one simple character, we might take the "pea" comb of the domestic fowl as an example, the factor for that character is either present or absent in each of the two gametes that make the individual. Thus in respect of any character there are three kinds of individuals; (1) A kind that springs from two gametes carrying the factor, in this instance a fowl with a "pea" comb: (2) A kind that springs from two gametes in which the factor is absent, in this instance a fowl with a "single" comb, and (3) a kind that springs from two gametes in one of which the factor is present and in the other absent. Now, kinds one and two are pure and will produce pure individuals, but kind three is impure and it is found to produce all three kinds, the impure in twice as many numbers as each of the two pure kinds. In the case of many characters, including the one I have selected as an example, the impure individuals are indistinguishable from the pure kind in which both gametes carry the factor: in this instance they show a "pea" comb. I will not follow up this study, which is known as Mendelism, any further at present because there are perplexing complications; for instance, there is interaction between factors, and some factors couple with and others repel one another; but the point that it is necessary to grasp is that heredity depends on the factors carried by the gametes and these factors are unalterable so far as we know. Two individuals similarly bred and indistinguishable in outward appearance may behave quite differently when bred from. Only by breeding tests can we tell whether they are pure or not.

So far as we know, characters that are acquired during the life time of the individual are not inherited. The reduction in the size of bees as the result of their being reared in cells smaller than normal size falls into this class of character.* Of course, if the conditions causing an acquired character are repeated in each generation, the acquired character reappears. We have a very remarkable instance of this in the female bee larvæ which, fed in one way, produces the queen, and, in another, the worker, an entirely different and sterile insect. Most of the characters in the bee that we wish to improve are in the worker, and the majority of these cannot be recognized in the queen. This adds to the difficulty of bee breeding, compelling us to test our breeding stock as colonies, not as individuals.

It seems to be well established that the half-breeds produced by crossing two breeds are very vigorous. This has been noticed in bees, and the vigour shows itself in increased energy in honey gathering which is a particularly valuable trait. Good results have been obtained in England by mating pure British Golden and pure Italian queens with English Black drones. A very industrious and hardy bee is the result. It is to be noted that in the next generation, (obtained by breeding from these half-breeds) every variety of bee appears. This is rather disconcerting to the honey producer, for though some of the colonies are excellent, for honey production, others are lazy and almost worthless, but it is by careful analysis of this generation and isolating and breeding from the best colonies, that the bee breeder may lay the foundation of his work of improvement.

The question of practicability of producing a non-swarming breed of bees is worthy of consideration. It is sometimes asserted that because swarming is the bee's means of reproducing itself, it is a primitive and ineradicable instinct. I do not think that there is any foundation for this statement. In nature and, even mind you, in ordinary modern bee-keeping, almost all the queens are the offspring of stocks that swarm; but queens bred by artificial methods need not be from swarming parentage, indeed, we may breed queens exclusively from stocks that do not swarm. The golden bee has been bred artificially, probably to a greater extent than any other variety, and it has interested me to notice that British Goldens which have been bred through ten generations irrespective of swarming have been very erratic in the way they swarm. They swarmed seldom and sometimes out of season; for instance, several first swarms came out at the end of July and one during the second week of August. Also—and this was very striking—the majority of the swarms returned without settling, sometimes before many bees had issued from the hive. The returning bees often left their queen in the grass and they were apt to enter neighbouring hives, there to get killed. For these reasons, when a swarm was expected, it was always advisable to be on the spot to attend to it.

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*There is no ground for supposing it possible to increase the size of bees by rearing them in extra large cells. It is doubtful whether increasing the size would be desirable even if it were possible.

Now irregularities such as these are just what one would expect in the first stages towards the disappearance of the swarming instinct, assuming that it depends upon more than one gametic factor, for by breeding generation after generation of queens from stocks that seldom or never swarm we are very likely to disassociate to some extent the factors involved, and this segregation would show itself in erratic behaviour. The swarms seemed to lack confidence. The migrating instinct appeared to be breaking down and to be no longer able to hold in abeyance the homing instinct. I hasten to add that the above mentioned irregularities may have been due to changes in environment, and some of them certainly were enhanced by such changes; but the point is that there is no scientific reason why a non-swarming variety of bee should not be produced, moreover there seems to be evidence that a departure in the direction of the production of such a variety may have already been begun unconsciously by the artificial method of queen-rearing.

Some writers have condemned the method of breeding queens from two-day old workers larvæ, now so widely employed in what is known as the Doolittle system, declaring that it will in time cause degeneracy of the bee; but what we know of the science of breeding denies that this can be the case. It is the general experience of queen breeders that if the queens bred from such larvæ are reared with due regard to the conditions requisite for the production of good queens, they are indistinguishable in quality from the best queens reared in nature. Even assuming, for the sake of argument, that the queens are imperfect in some imperceptible way, either on account of their being bred from two-day old worker larvæ, or of their being improperly nourished or incubated in the later stages, such imperfections belong to the class of acquired characters regarding which it has so far been impossible to find proof that they are inherited. We may, therefore, continue to rear queens from two-day worker larvæ and thereby get them three to five days earlier than if they were reared from the egg.

A point made by detractors of the artificial method of breeding queens is that it tends to shorten the life of the queen. It is probably that there is an element of truth in this. We know that the natural span of the queen's life is several years, while the worker lives only about eight weeks in the active season, or nine months in the inactive season. We also know that according to the extent that the queen larva has her supply of chyle food replaced by the less nourishing food given to worker larvæ to that extent do the queenly qualities become reduced and the worker qualities become more pronounced in the resulting bee. This replacing of food may take place when the artificial method of queen breeding is not carried out properly. Some of the worker qualities—for instance, reduction in size—appear sooner than others, and it is very likely that reduction in longevity is one of the earliest. There is indeed a good deal of evidence to show that reduction in size and in longevity, (probably other things, too) can be induced simply by a reduction in the abundance of the chyle food supplied to the queen larva, such as always takes place when too many queens are reared in a colony.

Longevity in the queen is not necessarily an advantage in itself. Indeed the death of the queen at a comparatively early age before she is old enough to reduce the profitableness of her colony by insufficient prolificness, might be a useful, automatic method of getting rid of worn-out queens and replacing them with young ones; but before this could be declared to be so it would have to be proved that short-lived queens are not defective in other directions.

Lest anything that has been said should be regarded by any who may not have followed it in detail, as favouring breeding from poor quality queens, I should like, in closing, to reiterate the supreme importance in breeding for improvement, of using queens that are first-rate in every particular. Most of the characters we wish to improve are so complex that we cannot hope to distinguish the elements in them that are germinal and therefore inherited from those that are acquired, and, therefore, so far as we know, not inherited. Breeding the queens uniformly and well is also of great importance, for only by doing this can we bring out and perceive all their good and bad qualities.

THE PRESIDENT: That paper is along a very important line. I think a great many people do not pay enough attention to the right breed and strain. Anything said along that line is always very timely.

MR. MCEVOY: I would like to ask Mr. Sladen if he ever bred from those that Howitt got in Northern Africa.

MR. SLADEN: No, I have not; they are called Punic bees.

A MEMBER: I would like to ask Mr. Sladen to say something about that Isle of Wight disease. I have been led to believe it has appeared on this side.

MR. SLADEN: All I can say is that it is a very serious disease in England. It appeared in the Isle of Wright about eight years ago, and at first the bee-keepers were inclined to laugh at it and think the report was exaggerated; but we soon discovered that the bees were disappearing altogether. It spread to the mainland, first to Hampshire, and then it spread right through England. Last year, I believe, it has appeared in Scotland and just lately in Ireland. It is a disease of the adult bee, caused by a parasite belonging to the micro-sporadia, a low form of animal life which lives in the stomach of the bee. It is very common in the bee in many parts of the world, and does not do harm; but under certain conditions it burrows into the intestinal walls and paralyzes the bee and it dies. There is no cure for it. The only thing to do is to stamp out the peril. However, probably there are different strains of this peril, and the one they have in England at present is a very virulent one. It is important that it should not be introduced into this country. Those symptoms produced by the disease may occur from other causes. You have had bee paralysis here which may be something different. Some classes seem to be more or less immune, and those remain and become centres of infection. They have got the parasite and it does not do them any harm. It being the disease of an adult bee the brood dies out because there is no bee to look after it.

A MEMBER: Has the adult bee any appearance whatever as he goes out of the hive and drops down to an abnormal position?

MR. SLADEN: The body is more or less extended and there are signs of paralysis. The symptoms vary under microscopical examination.

A MEMBER: Are you in a condition to get that test?

MR. SLADEN: We can do it at the Farm.

A MEMBER: I could have found a case a year ago.

MR. SLADEN: If you tell me the district I should like to hear.

A MEMBER: I am going back to the district. It was a suspicious case; it looked like bee paralysis; it had that abnormal condition, extended abdomen. The colony died. The queen, so I understand, was a good young queen.

MR. SLADEN: It often breaks out in summer.

A MEMBER: It destroyed everything, hive, comb and everything. They have nothing pertaining to that colony, but should it reappear I want to see that we get hold of it.

MR. SLADEN: Were there no other hives affected?

A MEMBER: No.

MR. SLADEN: It looks as if it might not be the Isle of Wight disease.

A MEMBER: How is it disseminated?

MR. SLADEN: By the droppings from affected bees and in honey. It is also carried on the legs of the bees.

A MEMBER: Some claim that paralysis and the Isle of Wight disease are one and the same.

MR. SLADEN: They overlap certainly, but the bee paralysis here is probably not the same.

A MEMBER: Did this affect the Italian stock at all?

MR. SLADEN: Yes; it was thought first that Italians were more resistant than the black bees.

MR. HOLMES: Is the ordinary bee paralysis (we have all seen a little of it now and then) caused by a parasite?

MR. SLADEN: I believe those diseases are being investigated, but it is not known what their cause is. It occurs in the south chiefly.

MR. SIBBALD: Oh, no, we have had it here.

A MEMBER: The bees go hopping over the grass by the hundred. They seem to disappear.

A MEMBER: I would like to ask the inspectors of Ontario if they have cured any apiary by the method of shaking, either by the double shake, the McEvoy treatment, or the single shake? Has there been an apiary cleaned by the shaking method? This is open to all the inspectors, if they know a single apiary, large or small, that has actually been cured.

MR. MCEVOY: Yes, whole and sound.

A MEMBER: You have added something to it. You have stated, which is misleading to the ordinary young bee-keeper, that all he has to do is to shake. I think it is impossible to cure European Foul Brood by the shaking method unless you Italianize, or else it is necessary to Italianize. Let the young bee-keepers who are coming in here, who are facing that disease, know that it is possible to cure it without the shake by Italianizing. It is impossible to cure it with the shake and not Italianize.

MR. PETTIT: In other words, the Italians are the main thing.

MR. HERCHISER: And the only thing.

THE PRESIDENT: If all our bees in Ontario were a pure Italian strain, would we have any cause to fear the European Foul Brood? It seems to me it is an important question, and it is going to be touched on later in the matter of dealing with queens. I think our Convention should impress on the members the importance of Italianizing all their bees. When we consider the inroads of the European Foul Brood we must close our eyes for the moment to contrary advice.

Mr. Herchiser: I want to mention a very important thing. I was informed recently by a bee-keeper that a year ago last summer he Italianized one yard of his bees with good Italian stock, and this year from those bees he got twice as much honey as from double the number of colonies that were not Italianized—black stock. It seems to me the greatest economy a beekeeper can employ is to do away with his black stock and get Italian. It is not a question of expense; it is a question of profit.

Mr. House: That question came up the other day. Dr. Hewitt stated in his argument that it was more of a matter of instruction than of inspection. We could do something in correcting the disease if we could head it off, it is the only way we can prevent it. Over in the States our inspector has been chasing after it. If our inspectors had been on their job, and started out by telling our bee-keepers they must Italianize, the disease would not have the headway it has to-day.

Mr. Pettit: I agree with practically all that Mr. House has said, but he has not explained how you will persuade the bee-keepers to introduce Italian queens so as to get ahead of the disease. They simply wll not do it until their property is all destroyed, or if they do raise a few queens their bees are all dead, and then they either go out of the business or start again in a business-right way.

Mr. House: We have specialized over in the States and the little fellow has gone. We do not care about the little fellow; let him go; but the professional, let him take notice and get out and Italianize and he will be here for years to come, and the other fellow who will not be forewarned may go back and sit down.

Mr. McEvoy: The best way to hammer it home is for some of them to lose everything. I wish to endorse every word Mr. House has said. Be sure you get pure Italians, and do not get pure trash. Get them from reliable breeders.

Mr. Herchiser: This European Foul Brood is a blessing in disguise. It has made better bee-keepers of the New York bee-keepers, and has done away with a lot of small bee-keepers. It is like we heard last evening from Mr. Clark in reference to the breeding of chickens. I was very much impressed with his talk. The greatest impression made on me was that the success of chicken breeding depends upon the man behind the hen, or upon the man behind the bee-hive.

Mr. Moore: One solution of this difficulty, I think, is that every bee-keeper should raise his own queens. I do not think there is so very much to be learned. Get from a good reliable breeder good queens, raise your own queens. You can do it.

Mr. Byer: Those remarks are in order to a certain extent. But you go east, or to any locality where the surrounding bees are all black bees, and you are simply throwing your money away. This is a nice point; we hope for a condition of affairs like that to come to pass. In that eastern yard up north of Brockville there are 250 colonies. I have corresponded with several breeders, and several advised me to rear my own queens. I felt it would be a mistake to rear my own queens where the surrounding bees were black. The only thing to do is to apply to a good queen breeder. I do not need to hold any brief for the queen breeders. The good ones are all rushd to supply the demand. If you have to pay out $75 for a hundred queens the next year you will get good interest on your money.

Mr. House: This thought occurred to me. Now, this gentleman says that everybody can raise queens, if we can do it in a proper way. If we expect to improve the strain of our bees we must do some selection on our part, and nobody as well as the producer can improve the strain of bees.

Mr. Lowey: Do you think any man, having a yard of say 100 or 150, who keeps a lot of black or hybrid bees can raise queens in that yard to re-queen them. Would he have queens by the time he got those cured to put them in. It affects the queen cells very seriously. If you paid $2.00 for your queens, you are going to lose by it.

Mr. Herchiser: Mr. Lowey is one of the strongest examples I can point to of the difficulty of getting the bee-keepers throughout the Province to Italianize. He has been the enemy of the Italian bees ever since I have attended these conventions, and only last year he said he was a never-ending friend of the black bees. I remember some said that if he got the European Foul Brood he would Italianize; he wouldn't be a bee-keeper unless he did. That illustrates what I want to point out—the great difficulty of getting bee-keepers to Italianize. You have got to hammer and hammer, and if they are as strong-headed as Mr. Lowey they will have to learn it by dear experience.

Mr. Moore: I offered last fall, and I am going to make my promise good. (You see I am a minister of the gospel first and foremost, but I like to come here on the fence and look over into your field.) In our neighborhood there are two of the bee-keepers that belong to our church. I said to one of them last summer, "I don't dread the European Foul Brood; I have all young Italian queens." I offered to give to those neighbors—and some of them are stubborn about these black bees—three or four of the best Italian queens I have.

Mr. McEvoy: I always claimed the Italian bees did not cost anything because they gave that much extra honey the next year.

PROBLEMS CONFRONTING THE NATIONAL.

E. B. Tyrrell, Secretary N.B.K.A.

I am sorry that it is necessary for me to write this article instead of being with you so we could talk the matter over in detail. It is so hard to make your meaning clear on paper, and there is much misunderstanding of what the National is trying to do and its plans of operation. Wherever these plans are understood the National has the undivided support of its branches.

But let us see just what the National Association has accomplished this year. Let us see whether it deserves our continued support, and let us see just what it is doing for its National branches.

When I was with you last year, the new constitution was then to be considered by the National members by vote. We didn't know whether it would pass or not. But it did, and that changed the organization from a big competitive organization of other bee-keepers' associations to one made up of those local organizations. Where the individual member of a local association supposedly belonging to the National had no representation in the National meetings unless he could attend in person, and where no local association as an association had a representative in the national meetings, the new constitution made it so every member was represented at the national meeting by his delegate from the local.

The question of expense of sending a delegate to the National convention might at first seem a barrier. But you must remember that under the old plan it was necessary for every member of a local association to attend the National meeting if the local association was fully represented. At the present time one delegate can represent every member of the local association, and of course a local association does not have to send a delegate unless it so desires.

Under the old constitution the National Association was losing ground during the past few years. This was no fault of the National officers, who were doing all any one could do under like cirumstances. But the trouble was that the organization plan was wrong. You will only have to consult your late National reports to see that the National was losing membership. During 1911 only 1,532 members paid their membership fee. We read in the bee journals that the National had nearly 5,000 members. This really referred to the National members, for when I received the membership card I had 5,000 circulars printed to send the members, and after addressing an envelope to every name I had on those membership cards I found I had only used a little over 3,000 envelopes. These names included all who had expired as well as those who were paid up.

The Association has been very much handicapped this year for lack of funds. At the time the work was turned over to me last spring there was just $28.09 in the general fund in the National treasury. You must remember that this was in the spring and after the biggest share of membership dues for 1912 had been paid. So you can see that we have been very much handicapped for funds this year, and no better argument could be presented in support of the claim that our dues at 50c. were too small to do the National work, than to mention the amount on hand after paying last year's bills and after the biggest share of membership fees for this year had been collected from the members.

Under those conditions it was very difficult to carry out the plans for the benefit of the membership that we would like to have done. It was simply a case of existence. But even with that handicap the directors authorized me as secretary to go ahead with some of our plans.

The first arrangement was with a factory to furnish our members tin packages for honey. To say that the arrangement met with good response is not an exaggeration, for up to this time we have sold $2,700 worth of cans and pails. These orders all paid a little commission to the general fund of the National. Next we arranged with a glass factory for our glass packages. So far we have sold over $300 worth of glass packages. By getting the orders from the members and sending them to the factory from the Association, we have accomplished two objects: First, we were able to get these orders filled according to specifications, so the beekeeper would know just what he would get. Second, we were able to keep this business in our control, and place us in a better position to deal with the factories another year, when we will know something about the amount of business we can handle. The more business we do the better position we are in to get the best prices for our members.

The next important move was the purchase of the Bee-Keepers' Review, which gave the Association its own official organ. Through it the members could be kept informed regarding all important notices, could be notified regarding prices of articles handled, and the members would have a means of communication among themselves. True the bee-journals have contributed liberally to the National with their space, but still they could not be expected to do what a publication owned by the Association itself could do.

It, of course, was intended to furnish the Review to every member of the National for his dollar membership sent to the National office. But right on the start we ran up against the United States postal regulations, which made it necessary that a subscription be received from a member before we could send him the paper. This prevented sending the Review to those who had already paid their membership, but as fast as they renew their membership, by sending it in as subscription the Review can be sent him. Then by paying the other 50c. to the National Branch one gets full National and Branch benefits as well as a subscription to the Review.

In order to comply with this requirement of the postal regulations the directors passed a resolution making a membership in a local branch all that was necessary to National membership. Then the dollar could be sent in here as subscription. This made it possible to get the Review as well as both National and Branch memberships for the $1.50. A proposed amendment to the constitution will be considered at the next National convention covering this point.

This means that if your Association takes legal action to become a National Branch, every member of your Association is by that Act made a member of the National by paying his local fees only. Then to get the Review, which will contain all important official notices and reports, he can pay an extra dollar, or a total of $1.50. This makes it optional with each member whether he pays the full $1.50 or whether he only pays the local branch fee of $50c. With this understanding there is no reason why your Association should not vote to become officially a National Branch.

The question has come up at different times as to why the National withdrew the legal support. So far as I can see the National has not withdrawn the legal support. The directors have as much power now as formerly to help members, but this help is not made a prominent feature of the constitution on account of its attraction to those who would take advantage of it.

And now a word about some of the things yet to be done. First, we want to continue the work of organization until all the bee-keepers are thoroughly organized throughout the United States and Canada. When you remember that the adoption of the new constitution really left us without a single branch, and that we now have 26, you can see that we have made rapid strides along organization lines. There is no doubt but this number will be greatly increased before the winter is through.

Second, we want to get uniform grading rules, so there will not be so much chance for dissatisfaction in grading as at present. I am pleased to say that progress is being made along that line. One of the largest buyers of honey regrades every pound of comb honey purchased, and this in spite of the fact that some of it is purchased from Associations having strict grading rules.

Third, a continued effort must be made in regard to selling honey. We have not been able to carry out all our plans for this year, but a start has been made and some good accomplished. As a rule we are not close enough to the consumer. This fact was proven in one case this summer, where comb honey produced in Wisconsin was shipped to Cincinnati, and reshipped to Detroit at a delivered price less than some Michigan producers were getting for their honey at their station. There is no doubt but that much of your honey is sold by the jobber before you have even produced it. A concerted action on the producers' part is necessary before the best prices are obtainable.

Summed up, the problems confronting the National at the present time are: a closer and more complete organization, with every member represented through his delegate at the National conventions, a system of organization that is understood in detail by every member, and where membership in the National must come through one of its regular branches; uniform grading rules; a more complete crop report; better methods of marketing our product; places in Canada where Canadian members may secure their glass and tin honey packages at wholesale; and an effort to secure proper legislation in the interest of the bee-keeper wherever such legislation is needed. All of which I respectfully present for your careful consideration.

Mr. Pettit: As this paper was sent to me, and as I happen to be the Vice-President of the National Association, which I consider an honor, I suppose I might say something with reference to this work. I am personally acquainted with Mr. Tyrrell, a man who is very energetic and quite capable of carrying through the plans which he has outlined for the National Bee-Keepers' Association. Briefly, his proposition is, as he states in the paper, not to withdraw the legal support. I believe that has been the strongest point with the National, the help we get in case we get into legal difficulties, and some of us have received material support from the National in times of trouble of that kind. He does not intend to withdraw that, but really to put the stress on assisting members in getting in touch with buyers for their honey and getting packages for honey. Somehow we do not feel we need the support of the organization in the matter of selling our honey. It is not a question of selling our honey; it is a question of supplying the demand. Mr. Dadant said to me last night that he was sorry he could not be here to speak for the National organization this morning, and he wished me to say that he hoped that the Ontario Bee-Keepers' Association would become a branch of the National Association and help along the good cause. I told him that I thought we did not need the help very much at the present time, and he said it would be a pity for us to hold back until we needed help, and besides we get help from the States. The men come over to our conventions and help us in that way. While they cannot help us to market our honey to any great extent at present, we should encourage the National Association by becoming a branch and giving them our support until we help them up to the standard we have attained in the matter of selling, and we probably would receive some extra benefit. It is the question of not holding back out of a co-operative organization until the co-operation has become established and was ready to help us.

I do not feel like offering a personal opinion with reference to our relation to the National. There is one point that I do feel like mentioning, the point that I brought up at the executive meeting last winter in Detroit: If we become a branch of this organization, the name should be changed so as to show that we are not one of the States of the Union, but that we are a fellow nation joining with another nation. That there are two nations involved in this organization. We are not a branch of the United States National Organization, but that it is an international organization. Years ago it was the North American Bee-Keepers' Association and it was changed to the National—I do not know why. I expressed the feeling very strongly and again this morning that the name be changed to take in the two nations. I think we ought to have opinions from our leading honey producers here to-day as to whether we ought to become a branch of this organization.

Mr. McEvoy: For a good many years I have been collecting fees for the National amounting to 50 cents, but when they put it up to $1.50 I warned them it would kill them.

REPORT OF COMMITTEE ON RESOLUTIONS.

To the Ontario Bee-Keepers' Association in Convention Assembled:

We, your Committee on Resolutions, beg to report as follows: First, we have learned with sadness of the death of David Chalmers, of Poole, also of J. F. Switzer, of Orangeville, and would recommend that the Secretary of this Association be delegated to draft letters embodying the sympathy and condolence of this Association and send them to the families of these honored members of this Association.

Second, we have had before us a resolution referring to the taxing of bees for special purpose, and after careful consideration we refer it to the Convention at large for discussion.

The following are the resolutions: First, Moved by J. D. EVANS, seconded by Chas. E. HOPPER, "That the Executive of the Ontario Bee-Keepers' Association be empowered to endeavor to have The Foul Brood Act so amended that inspectors of apiaries can be appointed in every municipality in the Province except Counties, who shall inspect every hive of bees in their municipality once a year, half of the cost of such inspection to be borne by the Province and one-half by the owner of the bees."

Second, we recommend that where there are District Representatives appointed in counties that they, the Representatives, have an oversight of the interest of bee-keeping by getting statistics of the colonies and apiaries and of the disease in such apiaries and work in conjunction with the inspectors and bee-keepers for the benefit of bee-keepers in every way.

Third, that we continue to hold the honey exhibit at the Horticultural Exhibition as an Association Exhibit contributed by the Ontario Bee-Keepers' Association and the local societies.

Fourth, having noticed the anxious inquiry from many of our members as to how and where to obtain queens, we would recommend that some plan be formulated by which such of our members as so desired might get quotations from and send their orders with the price to the Secretary of this Association for their requirement of queens, thus ensuring reliability and perhaps a measure of economy.

All of which is respectfully submitted,

W. COUSE, *Chairman.*
J. D. EVANS.
M. B. HOLMES.

MR. HOLMES: In dealing with the different matters that have been before this Committee, they have been placed by themselves, so that if there is any exception taken to any one of the clauses it may be dealt with separately, so as not to interfere with the report in full. I move the report be adopted. Seconded by Mr. Herchiser.

MR. SIBBALD: If the report is adopted is that motion passed?

THE PRESIDENT: It was read as a recommendation for the consideration of the meeting.

MR. MCEVOY: That means we receive it and it is to be debated on afterwards.

THE PRESIDENT: You receive the report as read. (Carried.)

Clause 1 carried.

Clause 2 carried.

MR. HERCHISER: That doesn't mean it is disposed with. It is for the Convention to deal with it.

Clause 3 carried.

Clause 4 caried with the addition of the word "County."

MR. ANGUISH: Of course, we have been doing our best in Middlesex County and have put up a very creditable exhibit. We tried to get the County into it, and I kind of think that by another year we will have the County in to assist us. We even had them come with us this year to be with us and help us a little on that exhibit. That is, a representative of the County is with us, and he is going to do his best to get us a grant from the County to help pay expenses. We may not always be calling on Ontario to help us out. See the grants that the counties give the apple men.

MEMBER: Have you a District Representative?

MR. ANGUISH: We had and we had him with us. We tried through him to get the grant, but he could not, because he was put into our County a little too late, but he assures us he will do his best for us.

MR. PETTIT: The point that Mr. Anguish is making is this: the district representatives from a number of the counties come to the Horticultural Show with a big display of apples, giving a great deal of time to such display. Why cannot the representatives make the same operate on his honey display. I am glad the Middlesex people are getting closely in touch with their County Representative.

Clause 5 was then read.

MR. COUSE: Mr. Sladen has said to me that it is part of his business to bring these queens here.

MR. SLADEN: I feel I have been engaged by the Canadian Government to help the bee-keepers of the whole country as much as possible, and chiefly in the way that would bring in as many dollars as possible. It seems to me this is a very important question, and I want to go into it very thoroughly. I think the best thing to do is to find out which of these Italian breeds is the most resistant, and then there is the question of which is the most productive. One of the first things I intend to do is to try and get queens from all the different districts. They differ in every canton in Switzerland and Italy. I think we ought to thoroughly sift out that question, find out which is the best breed for Canada. Of course, as regards the Italians you have here, I do not think we know exactly what they are. We have not yet reached that stage of perfection where we are sure we have got a pure breed, but you can get pure bees from the authorities in Italy.

MR. SIBBALD: I have had quite a number of queens from Italy, and never had one that was worth introducing. I do not see why you should just advise Mr. Sladen to go to Italy for queens, because he might go to the States and get better queens. He might go to Italy and get queens and test them along with the others. I would leave that open to him to go to any country where he can get the best Italian queens, for the most immune from European Foul Brood.

MR. MCEVOY: I think that is a good suggestion. Get the best, no matter where.

MR. HOLMES: I think there are breeders here who have been working for 25 years with Italian bees from the very best stock, and those bees are excellent. I do not think you can get any better results in Italy than from those. American bees have been bred for 25 and 30 years. I do not think we ought to forget those breeds.

MR. SLADEN: I should like to say I should certainly include the American breeds, but the only thing is, so far we have heard, that the Italians are very good, and some of the best breeders get bees from Italy. I think we should sift all the breeds from Italy and get them all.

MR. COUSE: I got the impression from Mr. Sibbald that they have not been satisfactory. That was the object in making that motion. We have the work done through the representative of the Dominion, so that if he did it they would be reliable. That was my object in making that resolution.

MR. HOLMES: I trust it will be fully understood that when this thing comes to the crucial point the actual source of supply is through the Secretary of this Association, and, of course, the President and Vice-President. There will be the actual source of supply. I think it will bear that interpretation, and that was the intention.

THE PRESIDENT: Did I understand that the Executive Committee were to be more of an information bureau, where the members could secure good stock?

MR. HOLMES: A central source of supply to such of the membership as require to get their queens in that way.

Moved by MR. HOLMES, seconded by MR. HERCHISER, that the clause as read be adopted. (Carried.)

THE PRESIDENT: I do not think that there is very much unfinished business to come before the meeting. There is only the matter of taxation. The Committee on Resolutions left that for the consideration of the general meeting.

MR. EVANS: I think as it is rather late we had better let that motion stand and not vote on it at all. It is like a notice of motion and can come up at the next Convention. In the meantime the members can study it up and understand the proposition better.

THE PRESIDENT: I think that is a very wise suggestion.

MR. EVANS: Give it a twelve months' hoist.

MR. HARKNESS: Another point I would like to bring before the meeting is this: Should not our fee that we pay in to the Canadian Bee-keepers' Association include the subscription for the Canadian Bee Journal? I did not get a copy of the Canadian Bee Journal last year, and I just wonder if we should not get it. I bring it before the meeting.

THE PRESIDENT: Of course we give the Canadian Bee Journal as a premium to all our members, and have been doing this from time almost immemorial every year. In fact, we are bonusing members in that way.

MR. BYER: I wish to say before we leave that I feel we are indebted to the York County Council for the use of their hall, and I would move a hearty vote of thanks for their kindness and courtesy in this regard.

Seconded by MR. HOLMES and carried.

MR. HOLMES: Mr. President, our American cousins have contributed in no small way to the pleasure and to the success of this our Annual Meeting. It has been a pleasure to meet them and a pleasure to listen to them. We have not only learned many good things from them, but we have had the inspiration because of their presence with us. Therefore, I would like to move. "That the best thanks of this Association be tendered our American cousins for the trouble they have taken to visit us on this occasion, and at the same time, as the Convention is just at the closing hour, we wish them God speed on their return journey to their distant home. While we are happy to meet with them, and sorry to part from them, we sincerely hope to meet them again." Seconded by Mr. Evans and carried.

THE PRESIDENT: I am sure it gives me great pleasure to convey this vote of thanks to our friends who have so kindly come over this year to assist us at our meetings.

MR. HOUSE: It has been a very great pleasure on our part to be with you. We appreciate what you are doing over here, and came for the purpose of taking back some of your methods to our people on the other side.

ANNUAL REPORTS

OF THE

DAIRYMEN'S ASSOCIATIONS

OF THE

PROVINCE OF ONTARIO

1912

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1913.

Printed by
WILLIAM BRIGGS
29-37 Richmond Street West
TORONTO

To His Honour SIR JOHN MORISON GIBSON, Knight Commander of the Most Distinguished Order of St. Michael and St. George, a Colonel in the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of Your Honour the Report of the Dairymen's Association of Eastern Ontario for 1912, and the Report of the Dairymen's Association of Western Ontario for 1912.

Respectfully submitted,

JAMES S. DUFF,

Minister of Agriculture.

Toronto, 1913.

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DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO

OFFICERS FOR 1913.

President—G. A. Gillespie, Peterborough.
First Vice-President—J. A. Sanderson, Oxford Station.
Second Vice-President—J. N. Stone, Norham.
Third Vice-President—R. G. Leggatt, Newboro.
Secretary—T. A. Thompson, Almonte.
Treasurer—James R. Anderson, Mountain View.

Directors:

Ontario, Durham, Victoria and Haliburton	H. Glendinning, Manilla.
Peterboro	G. A. Gillespie, Peterboro.
North Hastings	T. H. Thompson, Madoc.
South Hastings	Willett Farley, Canifton.
Northumberland	J. Nelson Stone, Norham.
Prince Edward	T. G. Wright, Picton.
Lennox and Addington	J. V. Walsh, Albert.
Frontenac	Joseph McGrath, Mount Chesney.
Leeds	Geo. Leggatt, Newboro.
Dundas	J. A. Campbell, Ormond.
Glengarry	Capt. Jno. Gillies, Glen Norman.
Prescott	Neil Fraser, Vankleek Hill.
Stormont	Geo. McLean, Finch.
Russell	W. H. Olmstead, Bear Brook.
Renfrew	J. B. Ferguson, Renfrew.
Lanark	Wesley Willows, Carleton Place.
Carleton	Fred. Dilworth, North Gower.
Grenville	Jas. A. Sanderson, Oxford Station.

G. G. Publow, Chief Dairy Instructor, Kingston

FINANCIAL STATEMENT FOR 1912.

Receipts.	
Cash on hand from previous year	$485 22
G. G. Publow, refund from trip to England	172 49
For members' fees	208 00
Ads. in Programme	120 00
Donation	2 00
Grant from Seymour Township	75 00
Grant from Percy Township	25 00
Grant from County of Northumberland	200 00
Grant from Town of Campbellford	50 00
Ontario Government Grant	2,500 00
Receipts from Prosecutions	620 58
Interest from Standard Bank	40 15
Total	$4,498 44

Expenditures.	
Campbellford Pay Sheet for Directors	$617 40
Pay Sheet No. 2, Smith's Falls	110 60
Pay Sheet No. 3, Toronto	174 60
F. W. Brenton, Salary as Prosecutor	480 00
F. W. Brenton, Expenses as Prosecutor	395 26
Lecturers' Expenses	383 70
Advertising and Printing	386 82
Rural Publishing Co. (for subscriptions to Farm and Dairy)	136 50
District Meetings Expenses	374 26
Officers' Stationery, Stamps, Telephone and Expenses	44 05
Salaries, Secretary	350 00
" Treasurer	100 00
" Stenographer	90 00
Balance on Hand Jan. 3, 1913	855 25
Total	$4,498 44

DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO

OFFICERS FOR 1913.

President—S. E. Facey, Harrietsville, Ont.
First Vice-President—J. B. Muir, Ingersoll, Ont.
Second Vice-President—Robert Myrick, Springford, Ont.
Third Vice-President—James Bristow, St. Thomas, Ont.
Secretary-Treasurer—Frank Herns, London, Ont.

Directors:

J. N. Paget, Canboro, Ont.
Thomas Ballantyne, Stratford, Ont.
John H. Scott, Exeter, Ont.
Wm. Bothwell, Hickson, Ont.
J. R. Stratton, Guelph, Ont.
James Donaldson, Atwood, Ont.

Auditors:

J. A. Nelles, London.
J. C. Hegler, Ingersoll.

Representatives:

Canadian National Exhibition, Toronto: Frank Herns, London; Robert Johnston, Woodstock.

Western Fair, London: John Brodie, Mapleton; Frank Herns, London.

FINANCIAL STATEMENT

Of the Dairymen's Association of Western Ontario, made to the Department of Agriculture for the Province of Ontario, for the year ending December 31st, 1912.

Receipts.	
Cash on hand from previous year	$161 39
Members' fees—289 at $1.00 each	289 00
Legislative grant	2,000 00
Money received from prosecutions	990 00
Donation for special prize	50 00
Sale of dairy exhibits	1,752 91
Advertising in programme	152 50
Total	$5,395 80

Expenditure.	
Cash paid for prizes: Cheese and Butter, $381.00; Dairy Herd, $52.00; Special C. S. Co., $49.99	$482 99
Expenses for Convention	163 30
Stenographer's salary, $345.00; Directors' fees and expenses, $142.65	487 65
Postage and stationery, $109.03; Printing, $191.55; Advertising, $202.18	502 76
Judges' fees and expenses, $38.15; Lecturer's expenses, $4.20	42 35
Prosecutor's salary, $220.00; expenses, $135.70	355 70
Periodicals for members	208 97
Cost of reporting convention	75 00
Auditors' fees, $13.00	13 00
Purchase of exhibits	1,756 11
Office light, cleaning and sundries	131 89
Office furniture, $13.70; office rent, $120.00	133 70
Telegrams and telephone, $62.75; Express and cold storage charges, $31.38	94 13
Half fine paid to factories	495 00
Balance on hand	453 25
Total	$5,395 80

Dairymen's Association of Eastern Ontario.

The Thirty-sixth Annual Convention of the Dairymen's Association of Eastern Ontario was held in the City Hall, Kingston, on the 8th, 9th and 10th of January, 1913. The meetings were well attended by the farmers of the neighborhood, and by dairymen from many sections.

G. A. Gillespie, Esq., Peterboro, the President of the Association, occupied the Chair.

CHAIRMAN'S ADDRESS.

G.A. Gillespie, Peterborough.

It is with pleasure that I welcome you to the Thirty-sixth Annual Convention of the Eastern Ontario Dairymen's Association in the city of Kingston, the home of the Eastern Dairy School which has done so much for our dairy industry. While it is a pleasure to welcome you, I cannot do so without paying a tribute to the memory of three of our oldest and most useful members, who have recently departed this life, the late J. H. Singleton, Edward Kidd, M.P., and M. K. Everetts, to whom this Association and the dairy industry of Ontario owe much for their untiring efforts in the interests of dairying.

It is not my intention to deal with any subject in detail, but in a general way to mention what to me seem the most important points to be discussed at this Convention.

We all appreciate the great work the Eastern Ontario Dairymen's Association has accomplished in the past through its district and annual meetings, but we must bear in mind that great and rapid changes are taking place in the dairy situation in Ontario, and if we hope to keep pace with these changes we must adopt a policy to cover a wider field of operations. I refer particularly to the production of milk for our cities. So far much has been done to educate the producer to the importance of clean, pure, milk, but we are far behind our neighbours across the line in our standard of milk for city consumption. The rapid growth of our cities is demanding more milk each year. The ice cream trade is growing by leaps and bounds. Much of the milk formerly converted into cheese and butter is now going to the cities either for direct consumption or for the ice cream trade.

The Cow Testing Associations have shown the dairy farmer the great possibilities of increased production. If all the dairy farmers in Ontario had developed as much as those who have taken advantage of cow testing what a different story we would have to tell. Our dairy industry would have returned this year, at least, 25 per cent. more money, and our imports of butter would have been greatly reduced. Our import of butter alone amounted to nearly 3,000,000 pounds.

The breeding of pure bred dairy cattle is another branch of the dairy industry which deserves attention. You will notice that the breeders of dairy cattle are not satisfied with conditions at the Guelph Winter Fair and have signified their intention of separating from that fair and holding a fair of their own. Several years ago this Association passed a resolution favoring the holding of an Annual Dairy Show, but could not induce the Government to lend support at that time. This Association might again consider the holding of an annual dairy show.

The new sanitary regulations adopted by the Provincial Department of Agriculture have resulted in vast improvements in the character of the cheese factories and creameries throughout Ontario. Better buildings and equipments enable the makers to turn out a higher grade product than in former years. In addition, the new standard of qualification which our makers have to measure up to before they can obtain control of a cheese factory or creamery, is tending to eliminate the poor maker and strengthen the position of our best men.

The cow testing work throughout Canada and the new dairy station at Finch conducted by the Dominion Department of Agriculture are doing a great work to further the production of more milk per cow and to encourage more permanent and sanitary buildings for the manufacture of cheese and butter.

Our output of cheese this year is fully as large as if not larger than that of last year, but owing to the increased demand for supplies from British Columbia and the Canadian North West, to which large shipments were made from Montreal and Toronto, there has been a decrease in our exports to Great Britain.

The exports of cheese from Montreal for the season of 1912 amounted to 1,723,021 boxes, as compared with 1,810,666 boxes last season, showing a decrease of 87,645 boxes. Placing the average price at 12¼c. per pound and allowing 82 lbs. to the box, would give an average price of $10.04 per box, or a total value of $17,299,130, as compared with $17,816,953 for the season of 1911.

The quality of cheese for the season of 1912, I believe, is the best in the history of the trade. Some complaints have been made of poor boxes and poor stenciling of weights on the boxes, also of some open cheese showing yeast, but the texture and flavor was the best in the history of the trade. The price was the highest on record since the years 1876 and 1877.

The export of butter to the British market this year is practically nil. Only seventy packages having been exported, and those to South Africa. Canada has found out she requires all the butter that can be produced at the present for home consumption. Although she exported, during the season of 1911, over 134,000 packages, she was obliged to import almost the same quantity during the season of 1912 from New Zealand and the United States. The increase in shipments to British Columbia and the Canadian North-west was fully 50 per cent. over the season of 1911, and the prospects are they will continue to grow larger owing to the rapid increase in the population throughout Canada. In butter, as in cheese, the average price is the highest on record for many years.

Summing up the dairy situation, I would say that the outlook is brighter than ever before for the dairy farmer, if we keep in mind the most important points; the production of a greater quantity of milk from the individual cow at the least possible cost; the production of a better quality of milk for direct consumption or for the manufacture of butter and cheese; more permanent and sanitary buildings for manufacturing and handling dairy products. People realize to-day more than ever before the importance of a better article of food and are willing to pay fancy prices for same. If we follow to the best of our knowledge the most important principles in dairying, the year 1913 will see even greater developments than the year 1912.

I had the pleasure of attending a meeting of The Royal Commission appointed by the Dominion Government to investigate the weighing and payment of cheese in Montreal. I must say from the evidence presented at that meeting, indications point strongly to the use of poor scales in our cheese factories and creameries, and in some cases to very great carelessness on the part of the weigher at the factory.

Not in one single case was evidence produced to show that Mr. McLeod had not done his work carefully and well. Complaints from England as to short weights are becoming serious. New Zealand is guaranteeing weights, by having their cheese and butter weighed by a Government weigher at the point of shipment, and in addition to this precaution, is allowing 2½ per cent. of an allowance for shrinkage in transit. They being our strongest competitors to-day, we must be willing to allow the English buyer a fair allowance in weight, if we wish to hold our proud position in the British market.

The shipping of green cheese is also responsible for a great deal of complaint, and I hope this Convention will go so far as to recommend that Legislation be passed to prohibit the shipping of cheese before a certain age.

I am sorry the Commission's report has not been in the hands of the Government before this Convention, so that we might have had the full particulars of their findings and recommendations.

I have asked the Chairman, Mr. Pringle, and his Commissioners to come to this Convention, and we will give some time to this very important question of weights.

I was very much pleased with the thoroughness with which the members of the Commission went about their work and I feel satisfied that when they are through, the question of short weights between buyer and seller will have been settled for all time to come, and that the dairymen of Canada will be deeply indebted to Dr. Edwards for having the Commission appointed to place the responsibility where it rightly belongs, to unite the confidence between buyer and seller, and place the name of our dairy products on a higher level than ever before on the British market.

I have in my hand a copy of the report of the first meeting of this Association held in the year 1878, and I can assure you that it makes very interesting reading. I would like to point out that at the first convention we ever held, the same line of thought was carried out, but the speakers at that time were all Americans. The names of Mr. Publow, Senator Derbyshire, and Mr. J. R. Dargarvel, who, I think, were among the first to be connected with the Association, are not mentioned in the report. Great development has certainly taken place since our first meeting, and if we continue to make as much improvement in the next thirty years as has taken place in the past thirty years, we will have every reason to be gratified.

IN MEMORIAM.

SENATOR DERBYSHIRE: Before any further business is done at this Convention, I wish to move a resolution with regard to the three members of our Association whom we have lost during the year. They have from the very beginning been pioneers and stalwarts in connection with the building up of this industry. I refer to our late President, Mr. J. H. Singleton, who, if he had lived, would be in the chair to-day; Mr. Edward Kidd, M.P., ex-president of the Association, and Mr. M. K. Everetts, also an ex-president. I am sure that this Association regrets exceedingly that these gentlemen have been taken from us and are not with us to-day. They were foremost in connection with the work we had to do, and for a good many years they did everything possible for the advancement of this Association and to make the dairy business more profitable, and we all mourn their loss on account of the good work they did. I, therefore, move, seconded by Mr. J. R. Dargarvel, M.P.P., the following resolution:

"Whereas by the decree of an All-Wise Providence, we, the officers and members of the Eastern Ontario Dairymen's Association, have by the death of our President, J. H. Singleton, Esq., Past President, Edward Kidd, Esq., M.P., and Past President M. K. Everetts, Esq. sustained a severe loss, one which will long be felt by ourselves, for as officers and members of this Association, they had become endeared to us all by their great ability, even temperament and courteous manner.

"Resolved that we desire to express our heartfelt sympathy with each of their families, and friends in the trying ordeal they have been called upon to pass through, and may He, who doeth all things well, sustain and comfort them in this great bereavement.

"Resolved that a copy of this Resolution be forwarded to the respective families by our Secretary."

I was associated with these gentlemen for twenty-seven years. They were honest, faithful and progressive. In the early days, when it was not easy to get milk, and when it was hard to make a fancy article of cheese, and when our cheese did not have the reputation it has to-day, these men by honest and careful methods and by zealous work helped to bring this business up to the perfection it has reached at this time. At the World's Fair in Chicago, we carried of 95 per cent. of the prizes for making fancy cheese in competition with the rest of the world, and a great deal of credit is due to these men for the results that have been attained. We will always remember with great feeling the efforts of these men. When I was President for so many years, these men were always behind me and ready to do everything they possibly could to assist in building up the business, and to-day this Association is poorer on account of their loss.

The resolution was carried by a standing vote.

COMMITTEES.

Nominating Committee.—Messrs. Stone, Sanderson, Glendenning, Leggett.

Resolutions Committee.—Messrs. Campbell, Farley, T. H. Thompson, Willows.

Legislative Committee.—Messrs. Derbyshire, Dargarvel, Publow, McGrath.

Business Committee.—Messrs. Sanderson, Olmstead, C. Anderson, Johnson, Frazer.

ADDRESS OF WELCOME.

Dr. Edwards, M.P. for Frontenac then delivered an address of welcome, referring particularly to the action of Hon. Martin Burrell in appointing H. B. Smith to promote cow-testing in Frontenac, and also in appointing a Royal Commission to enquire into the weighing of cheese.

Addresses followed by R. B. Henderson of Windsor and A. Rankin, M.P.P. for Frontenac, the latter referring especially to the action of the Ontario Department of Agriculture in appointing a District Representative for Frontenac.

DAIRY EXHIBITION.

MR. HENRY GLENDENNING, MANILLA.

When the Executive of the Eastern Ontario Dairymen's Association met in Toronto last fall I gave notice that I would move the following motion at this Convention: "That this Convention consider it advisable that we hold an exhibit of dairy products, dairy machinery and appliances at the same time and in connection with our Convention in 1914." Seconded by Mr. J. H. Sanderson.

The resolution was carried unanimously.

FEEDING DAIRY CATTLE.

J. G. TAGGART, REPRESENTATIVE OF THE ONTARIO DEPARTMENT OF AGRICULTURE FOR FRONTENAC COUNTY.

Many of you may have heard this subject discussed, and I may say many things that you have heard before. Of course we cannot learn a great deal in the short time we have at our disposal this afternoon, and I will mainly discuss feeding cattle in the stable.

The subject of feeding dairy cattle in the winter time, has become a very important one, because more attention is being devoted to winter dairying. The time is coming when I think we will be dairying all the year round, making butter in the winter and cheese in the summer, and keeping the factories in operation through the entire year. Dairy cattle are kept for the production of milk, and I will deal with the feeding of dairy cattle for milk production.

The theory as to how the cow produces milk has been puzzling scientists for many years. Some maintain that milk is a filtration product from the blood, but this theory is not generally held. Most of the up-to-date men claim that the milk is the result of chemical action in the udder of the cow, and in order to prove this they show us that in the milk we find two compounds which are not in any other part of the body. These compounds are milk sugar and casein, and these two compounds must be formed in the udder as a result of chemical action. Immediately above the teat, there is a milk cistern and there you will find a large number of very fine tubes leading away from this cistern. They end in small sacks. These sacks are surrounded by a layer of fine cells; outside this layer of fine cells are blood vessels. Blood comes in at the rear of the udder and is spread over and around these sacks and goes out at the front of the udder. You have noticed the veins on the belly of a cow and the little holes called milk wells. That is where the blood goes out to the heart to be taken back again to the udder of the cow; and it is while the blood is passing over and around these sacks in the udder of the cow that the milk is formed. The milk is formed from the food material carried to the udder in the blood. I wanted to point that out to you in order to show that there are many features in milk production which we do not control.

When we have a mature cow, we cannot control the size of the udder or the number of sacks that are there for the purpose of producing milk. The only way we can control that is in the breeding. We cannot control the capacity of the cow except by breeding. We can feed up to the capacity of the cow, but not beyond it. There are other features which influence milk production, such as the general care of the cow and its comfort. We must recognize the fact that a cow that is not well taken care of will not give the same quantity or the same quality of milk as a cow that is well taken care of.

Our subject this afternoon is feeding, and we will have to take it for granted that we have a good cow to start with, and then we must feed her up to capacity and feed her as economically as possible. Merely stuffing in feed, will not give us the results we want. We have to consider the quantity and the quality of the feed. We may get a large yield of milk, but if the food consumed is costing us more than the milk is worth, then we are not following good business principles.

We must first consider that the life of the cow must be maintained, and quite a large proportion of the feed we give the animal is used in maintaining the life and the ordinary functions of the body. For instance, every time a cow moves around, energy is used up and that energy must come from the feed. A large amount of energy is used up in the work of digestion, especially in digesting rough food; so that before we think of producing milk, we must allow enough food to maintain the cow.

If we grind up corn and peas, any farmer could tell the difference, but a great many people could not. If you pick up some of each in your hand, they seem to be about the same weight and their consistency about the same, but there is a great difference in them. If you feed peas to a dairy cow, you will increase the production of milk, if you feed peas to a young animal, you will stimulate the growth and muscular system, and it will tend to give you a large, well-developed animal.

On the other hand if you feed corn as the sole ration to a young animal, you will find that the growth will be stunted and a large strong frame will not be built up. Hogs fed corn alone grow weakly and are poorly developed. On the other hand, peas are especially adapted to the growing of bone and muscle and the building up of a strong, rugged system in a young animal, and they are also an excellent feed for milk production. But corn fed to a fat hog or to a steer will give us better results. Corn produces fat, and peas produce muscle and bone. The chemist can analyze foods and he can analyze milk and casein, and he can tell the particular constituent that is required for milk production and for fat production.

There are three classes of constituents in the food we give our animals. The first and most important one is called by the chemist, protein. The second is carbohydrates, and is composed largely of starch and sugar. The third is fat. It is similar in composition and action to the carbohydrates though more concentrated. Protein is the constituent that we find very largely in peas. It is most expensive to buy and is the least common in our foods. Of course, in the building up of bone, ash is required, but when we get a food rich in protein, we get one that is rich in ash. Protein is not a single element, but is made up of a number of other elements; the chief one is nitrogen which is most commonly deficient in our soils and foods. If we buy commercial fertilizers, we pay about 20c. a pound for nitrogen while the other fertilizer constituents cost about one-third of that amount. In the rough food grown on the farm, there is less nitrogen than any other class of constituent. Take timothy and oats and oat straw and you will find that a very large proportion of oat straw and timothy is made up of starch and sugar and fibrous material, and a very small amount of protein.

The next thing to consider is how much of these constituents is necessary for the maintenance of the body of the animal and how much or what proportion of each is necessary to produce milk. Scientists tell us that for a cow weighing one thousand pounds, about one pound of protein a day is sufficient to maintain the body without producing milk or doing any work, and in connection with this one pound of protein about eight to ten pounds of starch and sugar—that is digestible starch and sugar, are required. Starch and fat can both be used for the purpose of laying on fat, the only difference between the two is that fat is more concentrated; it is about two and a half times as valuable as the starch. One pound of fat is equal in food value to two and a half pounds of starch, otherwise they are the same.

In feeding a cow, more starch and fat are required than protein but that does not argue that the starch is the most important. Starch and fat are important and necessary for the mature animal that we are going to fatten for the market, but on the other hand for the young and growing animal or the cow that is producing milk, a large quantity of protein is necessary because it is used to build up the tissue of the young animal. Milk is produced by the cow for the purpose of feeding her calf and is rich in protein because it is designed by nature to sustain the young animal. We must feed a cow plenty of protein in order to have her produce milk. Anything over the pound may go towards the production of milk until we reach the capacity of the cow and then no matter how much more we feed, we will not get any more milk.

The composition of milk is about 87.3 per cent. of water, 3½ per cent. fat, 5 per cent. sugar and 3½ per cent. protein, .7 per cent. ash. If we figure that out, we will find that the proportion of muscle building material to fat producing material is about one to three point seven, or one to three and three quarters. In all our ordinary fodder plants and grain crops, there is much more starch and sugar in proportion to the amount of protein than there is in milk, so that you see the ordinary feed a cow gets is not exactly designed for the production of milk. If we give a cow a feed that contains more starch than necessary and not as much protein as is necessary, some of the starch is going to be wasted. If we have a cow that is going to produce 100 pounds of milk, 3½ per cent. of that milk being protein, we require at least 4½ pounds of protein to be digested and go into the circulatory system of the body. We must remember that one pound is necessary to maintain the animal and that means that 2¾ pounds are necessary for the cow to produce fifty pounds of milk each day. Then when we consider the fact that quite a proportion of the protein of food is not digestible, we must increase that to over three pounds of protein in order to have sufficient material for the cow to produce milk. Protein is absolutely necessary for the production of milk and that is why so many people are advocating alfalfa.

Corn silage is a wet food and if it were dried down the same as straw and timothy hay, you would find it compared very favorably with these foods. Clover compares quite favorably with alfalfa although it is not quite so good.

When we start to make up a ration from common farm feeds you will find that the proportion of starch and fat is too great, and there is not sufficient protein, and if you feed more of one ingredient than is necessary, it will be wasted.

It is becoming a common practice in many dairy sections to buy some of the feed. Some farmers will go to town and say " Here is a food worth so much a ton and there is another food worth two or three dollars more. I think I had better buy the one that is cheaper." Instead of doing that, what you should consider in buying feed is the constituent that you require. Clover hay has protein in it, but we cannot feed a cow altogether on clover hay or alfalfa hay. In buying we should attempt to get something that will supply what we lack. A great many people are at the present time buying wheat, bran, and middlings to such an extent that these articles have become standard foods, and as a consequence the prices have gone up until they are scarcely profitable to buy. Middlings are a little richer in starch and fat than bran, but very much the same in protein. I do not think either bran or middlings fill the bill satisfactorily, although they will give us good returns. There is one feed that I am sorry that I have not on my chart—linseed meal or oil cake. It will supply the need very well. It contains 30.1 per cent. protein. It has more than twice as much protein as any food that I have on the chart. There is an objection to linseed meal because it is high priced. It is much in demand for feeding fattening cattle because it contains a considerable amount of oil and gives the cattle a sleek, nice appearance. Cotton-seed meal is made from cotton seed as oil cake is made from flax seed. There are two kinds of cotton-seed meal. In pressing out the oil in one case they take the hull off the seed and in the other case, they do not. If the hull remains on the by-product has more fibre in it and is a less valuable food. The higher grade cotton-seed meal is richer in protein than the linseed meal, and it is cheaper because it is not so desirable for fancy stock. It will not produce as glossy a coat, and if fed in very large quantities, it is injurious to the health of the animal, but if fed in quantities of not more than three or four pounds and not more than one pound at first, it is not injurious but has a very beneficial effect in increasing the milk supply.

I remember one place where I was working, the man had no cotton-seed meal or linseed meal but was just giving the cattle bran, peas, barley and corn ensilage and clover hay. I induced him to get some cotton-seed meal, and it was only a short time until the increase in the milk was noticeable. Before that time the cows were not milking up to their capacity owing to the fact that the supply of protein was not sufficient.

You all know that it is absolutely necessary to have a good supply of water for your cows and it should not be too cold because if it is they will not drink enough. It is best to have the water inside where they can get it whenever they want it. Milk is largely water and if the supply of water is limited then the milk will be limited.

SENATOR DERBYSHIRE: Can you give us a ration for a cow weighing fourteen hundred pound that a farmer can raise himself without buying anything?

MR. TAGGART: If I were doing it myself, I would feed the cows alfalfa hay, corn silage, oats, barley, and peas, but I doubt whether you can raise peas as economically as you can buy cotton-seed meal or linseed meal.

SENATOR DERBYSHIRE: We want to raise this food on the farm.

MR. TAGGART: I think you will have difficulty in doing that. You cannot raise on the farm the materials that will make a properly balanced ration, but I would advise alfalfa, corn silage, oats, barley, and peas—say forty pounds of silage, eight or ten pounds of alfalfa hay, four or five pounds of oats, a pound or two of peas, and a small portion of barley. I think that would keep a pretty good cow going and she would milk well. Of course you cannot feed all your cows alike.

SENATOR DERBYSHIRE: The farmer should raise all the stuff on his own farm.

MR. TAGGART: I think he should buy some things. I think you should use the scales in the stables at both ends of the cow. You should weigh the feed you give them as well as the milk they produce. I would fill the old corn measure up with the various kinds of feeds I might be using and weigh each one so as to know how many pounds of each feed the cows were getting. Some farmers do not know how much they are giving their cows even when they measure it out to them, because they do not know how many pounds the measure contains.

A MEMBER: If a census were taken of the dairy farmers in this country who are making the most money, do you think it would show that they buy their feed or raise it?

MR. TAGGART: I consider the most prosperous farmers are buying some portion of the feed. The best farmers are buying feed. It may be that they are in the business so extensively that they cannot raise enough and have to buy.

A MEMBER: Cannot you grow the roughage cheaper than you can the grains?

MR. TAGGART: You can grow roughage, but you cannot grow the concentrated article.

SENATOR DERBYSHIRE: Is there one farmer between here and Pembroke that is raising half as much feed on his farm as he could if he went at it in the proper way?

MR. TAGGART: There may be some.

SENATOR DERBYSHIRE: There is not one raising the produce that he should raise and could raise if he went at it in earnest.

MR. TAGGART: That is true. We are not raising all that we might, but at the same time, in my experience I have noticed that the men who are raising the most at home are the men who are buying the most feed. I have been asked the question a number of times: "Can we, by feeding a certain kind of food, increase the fat in the milk?" So far as I can find out, we cannot influence the fat very much.

SENATOR DERBYSHIRE: You can double it by feeding the cow more and have her produce double the quantity of milk.

MR. TAGGART: I mean to increase the percentage of fat.

MR. GLENDINNING: I notice that the chart you have is not in accordance with most of the charts that are put out along the line of feeding. Most of the authorities make their nutritive ration on the basis of the digestible food, but you make it on the basis of the food that is given to the animal. Take for instance timothy hay, you have 5.9 of protein and alfalfa hay 14.3. In the composition of timothy hay, other authorities give 2.8, as there is a difference of more than 3 per cent. in the digestible protein. In alfalfa hay you have 11 or a difference of a little over 3 per cent.

MR. TAGGART: I am not responsible for this chart. Professor Harcourt of Guelph is responsible for it. These are the total not the digestible nutrients in the food.

MR. GLENDINNING: I think it would be misleading to a farmer, because he would think he was feeding 5.9 of protein in timothy hay when he would be only getting the results of 2.8.

MR. TAGGART: The other foods have the same advantage on this chart.

MR. GLENDINNING: There is a higher percentage of alfalfa that is more digestible than timothy, and that is where I think your chart is misleading.

MR. TAGGART: It is the only chart I could get. But this chart shows the total and in order to get it accurately, we have to get the digestible nutrients instead of the total. The digestible protein in alfalfa is 3 per cent. less than 14 and the digestible protein in timothy is 3 per cent. less than 5 so that timothy is less valuable than is shown by this chart.

CROP PRODUCTION FOR DAIRY FARMERS.

J. H. Grisdale, Experimental Farm, Ottawa.

I have been interested in dairying in Canada for many years. For the last fourteen or fifteen years, I have been running an experimental farm and have had complete charge of it. During the last two years, I have had charge in a general way of about twenty different farms where dairying has been carried on to a greater or less extent, being as I am Director of the Dominion Experimental Farms. To show you that I am closely in touch with the dairy question in Eastern Ontario, I may say that we sold from our little dairy herd at the Experimental Farm, Ottawa, in the month of November, $1,000 worth of dairy products, and further, we kept the herd that produced this produce on two hundred acres, and we bought no food except some oil cake meal, cotton-seed meal and bran to supplement the feed we produced on the farm.

A Member: How much?

Mr. Grisdale: We produced enough on the farm to feed these cows, but in addition to the dairy herd we have about 500 pigs, 20 horses, and 50 or 60 sheep, to say nothing of 500 or 600 poultry, so that it would be difficult for me to say how much more was required than was produced on the two hundred acres to feed the dairy herd; but I should say $1,000 would cover it easily.

In Eastern Ontario we have conditions which make for the production of excellent ensilage and roots at small cost and in large quantities. These furnish succulent forage of the best description. Care must be taken, however, to so preserve them as to insure their being of good quality when needed for feed.

Then we must consider variety; the cow, like oneself, wants variety. One does not want to live on bacon and eggs for three hundred and sixty-five days in the year, and every meal in the day; neither does the cow like to eat clover hay every day in the year at all meals. One likes variety, by having one kind of food one day, and another food to-morrow, and so on day after day, and then come back to the food which one had at the first meal. The cow, however, is different; the cow likes uniformity of ration day after day, but the ration may be of a great variety of materials, and that is a point the farmer must keep in mind and to provide for which he should grow a variety of crops. It is not enough to grow ensilage or clover hay or oats, he must grow a number of these things and give them to the cattle in fixed proportions while feeding the concentrates according to the amount of milk the cow is giving. The roughage should consist of as great a variety as you can grow of these coarse feeds. The ration must be uniform. A cow that is in the habit of receiving at the noon meal a proportion of roots, resents very markedly the cutting of that out on any given day. If she is in the habit of receiving corn ensilage in the morning and you suddenly turn to roots, she will show her dislike to the change to roots. If she is in the habit of receiving alfalfa or clover hay in the evening, and you take it away and give her straw, she does not like it.

After succulence and variety, we have quality. By quality we mean that peculiar odor or flavor or aroma in the feed which makes it appetizing and acceptable to the animal and which makes it easy to be digested.

You should keep these three points in mind, *succulence, variety, and quality.* A great many of the foods produced on the farm are good, bad or indifferent quality. Very frequently, I am sorry to say, they are of indifferent quality. I notice on the chart used by Mr. Taggart, that the ensilage was given as containing less than twenty-one pounds of dry matter. That is a very inferior ensilage. I do not care for ensilage unless it has twenty-three to twenty-five per cent. of dry matter. Any farmer can have good ensilage by growing his corn under proper conditions and by harvesting it at the right time. If you are growing clover hay it should be harvested before the stems are woody and it should be cured in the best way. We cannot control the weather, but we can do a very great deal towards getting our hay cured in the right way and then it should be housed in such a way that it will keep in the best of shape. It should not be put in when there is dew on it or under any condition which will induce mould.

By insuring these three qualities in our ration, succulence, variety and quality, as indicated by what I have said, we can count upon a ration that the cow will eat up greedily. Then after that, we have to consider the suitability of the meal ration. Mr. Taggart has dwelt at length upon that, and I will not dwell upon it, except to say that it should be acceptable to the animal and it should be bulky. If there is one thing that a cow craves it is something to distend the digestive organs. If a cow is not full, she is not happy and she is not digesting properly, and therefore, bulkiness should enter into the consideration when you are growing crops for dairy cows. You must grow something that will fill the cow and at the same time be succulent and of good quality. Given all these conditions, the food will be readily digested and very much better results will be obtained than if one or some of these conditions are lacking. Rations of similar composition, but which on the one hand would be lacking in palatability and on the other hand very palatable, are very different in the results. If you give a cow something that she likes, even though its chemical composition is exactly similar to a ration she does not like, the ration she likes will give you from ten to forty per cent. better returns than the ration she does not like. That is one of the principal points to be considered in feeding dairy cattle, and it is an important point for the farmer who is producing his own roughage. He must grow these feeds and preserve them in such a way that they will be acceptable to the dairy cow.

In Eastern Ontario, we are blessed with conditions of soil and climate that enable us to produce a great variety of crops; amongst these which we grow at Ottawa are corn for ensilage, roots, alfalfa, red clover, alsike, mixed hay, brome grass, blue grass and a number of concentrates. Of the concentrates a mixture of peas, oats and barley has given us the best results. Peas and oats do well and oats and barley do fairly well and we can grow pure oats exceedingly well. This year we grew between four thousand and four thousand five hundred bushels of oats in addition to the amount of roughage necessary for the feeding of these cattle. Peas, or peas and oats alone are not the concentrates that are best suited for the production of milk. We quite agree with what has been said that in order to get the best results from feeding dairy cattle, we had better invest a little of our surplus returns in the purchase of a moderate amount of cotton-seed meal, oil cake meal and possibly corn meal.

It being admitted that the feeds I have mentioned are the most suitable for the cow, let me discuss what is really the subject on which I am to speak, "Crop Production for Dairy Farmers." Corn for ensilage is undoubtedly the feed which receives the greatest attention in Eastern Ontario. Then comes clover hay and possibly alfalfa and then oats and peas. If we are going to produce sufficient feeds for our herds, we must count on producing a considerably greater amount of feed than would be sufficient because we can never tell for sure what is going to be the exact crop on a given area. It is always wise to arrange to grow one-third or at least one-quarter more feed than you anticipate you will need. You can always carry it over or dispose of it to some one else if you do not require it. That is one of the safest rules I know of. You can get along without very much meal, but you must have roughage if you are going to succeed in dairying. If you have to buy roughage it is an exceedingly expensive matter, therefore, one of the most important points is to see that you have an abundance of roughage. In order to insure an abundance of feed year by year, you must arrange a regular succession of crops and have a regular cropping system. Don't say "I guess I will grow corn in that field this year," or "I guess I will have oats over here." If there is a large amount of rough land on the farm, then the three year cropping system is the best. Supposing that at the back of your farm you have enough land for all the pasture you require, then you should divide your arable land into three equal areas and follow a regular system of cropping. By following such a plan, you will be sure to produce abundance of feed for your live stock year after year.

The crops which we grow on such a three year rotation are: corn ensilage, oats and hay. One-third of the land is put in corn or roots, then followed by grain seeded down with six pounds of timothy, two pounds of alsike, ten pounds of red clover, and if the land lies in such a way as to make it a probably successful crop, we sow six to eight pounds of alfalfa. That is a heavy seeding, twenty-four or twenty-five pounds of seed. Many people say it is too much. Then after grain we have our hay crop.

On a farm where there is not a sufficient area of rough land to provide sufficient pasture for the cattle, summer feeding is often more important than the winter because it is in the summer that we make our harvest from dairy cattle. If you have not sufficient rough land to pasture your cattle, you should divide your land into four fields and let it stay one year longer in hay or pasture and then you have a four year rotation; the first year roots or corn, second year grain, third year hay, fourth year pasture or hay as you like. That rotation if followed out will give you most astonishing results in the amount of feed it will produce, in the effect it will have upon your farm. If you are able when you start such a rotation, to produce say $2,000 worth of feed, I venture to say that in ten years, you will find yourself able to produce $4,000 worth of feed from the same area at the same cost. That sounds like a strong statement, but it is true, and I can prove it by our own experience and by the experience of William Rennie at Guelph, some few years ago. It is a rotation that will give first class results and of the crops I mentioned, possibly corn for ensilage is the most important. Corn should be the staple crop on every farm in Ontario and on practically every farm in Quebec and on almost every farm in New Brunswick and Nova Scotia. In this Eastern part of Ontario, par excellence, there is nothing that will compare with corn. Farmers have tried over and over again to grow other feed that will take the place of corn, but it cannot be done for several reasons. First we find corn can be produced very much more cheaply per ton of food and per ton of dry matter than any other crop on the farm. In the second place, it can be produced with very much less manual labor for food unit than almost any other crop you like to name. As you know you can start in with your sulky plough, riding harrow, seeder and riding cultivator and riding harvester and with your cutting box. Practically the only hand work you have to do is the throwing of the bundles on to the waggon and from the waggon on to the cutting box. If you can name to me any other crop where there is such a small amount of manual labor connected with the production of such an enormous amount of roughage, I would like to hear of it. I know there is no crop which will at all compare with corn in economy of cost of production or in economy of storage. When it comes to storing corn ensilage, it is easily the most cheaply and the most permanently stored of any of the feeds. It is always on tap. I have seen corn put into our silos at the Experimental Farm at a certain season and brought out three years afterwards in just as good condition as when it went in and better, because it was absolutely perfect so far as condition was concerned, and tested a very much higher percentage of dry matter than the sample on this chart. In storing grain, you have to be careful that the rats do not get at it, but there is no danger of that with ensilage. We have 200 acres on our farm at Ottawa and about 55 acres is devoted to corn. Corn is a crop that never fails. Some farmers had a failure in the corn crop last year, but it was their own fault. I admit that last year was a bad year for corn, but just as in every other year, we had a good crop, in fact in 1912, we had one of the biggest crops that we have had in all our experience in growing corn. It was not because we were growing it on sand hills, because sometimes we had to bring the waggon to a certain point and then unhitch and drag the waggon out with a logging chain, the ground was so wet. I can take you not three miles from where we were growing corn and show you crops of corn that were not as high as that table at the time they were cut and the weeds were a great deal higher. Why were our crops so good? Because we followed the best method of cultivation and took the best care of that corn, and our land is under-drained. The man who has heavy land or level land and does not under-drain it ought to be sent to some place where he would learn better habits. There is no question but that under-draining should be done on every farm in Ontario. I am glad to say that the farmers in Eastern Ontario are waking up to the importance of it. I venture to say it is worth $100 to every acre of land on the farm. But corn can be grown even if you do not under-drain. One of the biggest dairy farmers in Canada has a farm that is as level as that floor, and he grows immense crops of corn on a blue clay soil, and he grew an excellent crop of corn last year even though we had such an abundance of rain. That man grows corn on his heavy not under-drained land by ploughing in a certain way, that is, laying it up in narrow ridges, and seeing that it is properly worked; and no matter how wet or dry the season is, there is always a good crop of corn. And so every farmer in Ontario can have a good crop of corn if he will observe the right conditions. The first thing is to put it in the right place on the farm. Put it on a field that was last year meadow or pasture. Plough it with a rather shallow furrow and then pack it down. Roll it once or twice and then disk it and roll again then disk it three or four times more until you get it worked down like an onion bed and then sow your corn. It looks like a lot of work, but I have not mentioned a single operation where a man has to walk. You can purchase a double cultivator that will cultivate two rows at once. Such cultivators cut off one-third of the cost of producing corn.

Do not purchase a cultivator that has two moveable parts and where you straddle the row and do part of the space between that row and the next row, and then have to come back with your wheel in the same row. You should have a cultivator that will do the two rows at once and then when you come back, you are on two entirely different rows.

Q.—Do you take two crops off the one sod?

A.—No, one crop and we follow the corn with grain. We find it advisable not to sow the grain too thickly, and to give the grasses and clover a chance to start up. If the season is very dry, we find that the grain will grow up quickly enough to shelter it from the heat and if the season is wet, the grass grows rapidly. If you have the grain too thick, it interferes with the grass and the hay crop the next year, which is the second most valuable of the crops on the dairy farm. We sow this heavy seeding of grass: six pounds of timothy, two pounds of alsike, ten pounds of red clover, and unless it is in a very low place, I would recommend sowing six or eight pounds of alfalfa. Everyone of these grasses last year cost us 20 cents a pound, which means $5.00 an acre for seeding down. We consider that if by sowing a dollar's worth of grass seed we can get five or ten dollars' worth of hay while by sowing $5 worth of grass seed we can get $50 worth of feed, it is cheap. I won't say we get that proportion but we have got $50 worth of hay from an acre. You have the same work and the same land to go over and it pays well to put in plenty of seed and get a good big crop.

Q.—Can you get your seeds to mature at the same time?

A.—Yes, they mature all right. The alfalfa is just beginning to come into blossom at the same time as the clover, and the timothy of course is not much. We sow the timothy for fear that something might happen to the clover. The timothy is a very sure crop and that is the reason it is so commonly grown, and if our clover should happen to be rather thin, then the timothy comes on. If we are following the four year rotation, a good part of the clover is killed out at the end of the first year and sometimes part of the alfalfa is gone, although the alfalfa lasts a good deal better than the red clover. Where we have four or five tons to the acre, we have to let it cure and it takes more than a day for that purpose. We use the hay tedder and the side-delivery rig. The side-delivery rig is one of the best implements ever invented.

Q.—How about using it on rolling land?

A.—The land has got to be pretty rolling if you cannot use a side-delivery rake. You go along with it and kick the hay over and that part which was next to the ground is now on top and dries, and then you go along the other side and kick it back, and it is the quickest way of drying hay I have ever tried; it beats the tedder all to pieces.

Q.—Do you coil the hay then?

A.—No, not unless the weather is bad.

Q.—Do you use a hay loader?

A.—We did use it, but we do not now because it is too hard on the men. I do not know anything that will bring the sweat out quicker than being on the waggon when the hay loader is working.

Q.—Which corn do you think is best?

A.—White Cap Yellow Dent, Leaming, Longfellow and North Western Yellow Dent. Buy your seed corn early and be sure you get a good quality.

MR. GLENDINNING: Have you had any trouble with the White Cap Yellow Dent blowing down?

PROF. GRISDALE: No; the White Cap Yellow Dent and Leaming ought to be ideal varieties for this district, and I grow both of them. We sometimes grow Mastodon and Reid's Dent as well. The best way to ensure getting good seed is to send to some man who handles seed and ask him for a sample and test it yourself or send it to us and we will test it for you. If you buy according to sample and they do not ship you according to sample, you can go after them. We usually buy our seed on the cob.

Q.—How much do you sow to the acre?

A.—About 18 pounds of the small variety and 24 to 25 of the large varieties. We use about twenty pounds of White Cap and about 25 of Leaming where we sow it in hills, but if we sow it in drills, we sow more.

Q.—Do you apply manure to the corn land?

A.—Yes, in the fall and all winter, any time from the time the second crop of hay is cut. If it is a dry season, we find it better to apply on the surface after ploughing. We never pile our manure, we get it out on the land and spread it at once unless the snow is too deep.

Q.—How deep do you disk the land for corn?

A.—The first disking is about two to three inches; we use a double disk, one disk behind another, and instead of using two horses, we have four. I prepared an article for *The Farmers' Advocate* a year ago on this very question, on the economy of large implements. We can grow our corn much more cheaply than we did twelve years ago, although we pay a much higher price for horse labor and man labor. To-day we are paying over $2.00 a day for our teamsters, and ten or twelve years ago, we paid only $1.25, but we are producing our corn cheaper than we did twelve years ago because we use better implements. We are using the two row cultivator and the two furrow plough and even the five furrow plough and double disk harrow. As an example of the economy of the big machine, it costs us 90 cents to do a certain area with a small disk and 70 cents with a large disk and 45 cents with a double disk.

Q.—What is the price of that double disk?

A.—About $35.

Q.—What does it cost to put ensilage into the silo?

A.—The year before last, it cost us $1.60 per ton for good ensilage; that is to grow it and put it in the silo. That includes the rent of the land, seeding, labor, use of machine and everything. The rent of the land is $3 an acre and the manure is included. We do not charge the whole amount of the manure to the corn, we charge one-third.

I thank you for your kind attention. (Applause).

THE OUTLOOK FOR DAIRYING IN ONTARIO.

J. A. Ruddick, Dairy Commissioner.

For some years past I have presented to the annual convention of this Association a general review of the dairying industry with special reference to the international trade in butter and cheese. The situation has been changing so rapidly during the past decade, at least as far as Canada is concerned, that it has been possible to present this subject with a sufficiency of new matter each succeeding year to avoid the charge of repetition, although I am well aware that the subject is naturally a dry one. I do not choose it for a popular one, but because I feel that it deserves the attention of this Association. In previous years I have given more or less prominence to the Canadian export trade, but on the present occasion I propose to deal more particularly with the home trade which is every year becoming more important and which is now at least five or six times as large as the export trade.

INTERNATIONAL TRADE.

Before going on to discuss the home trade we will do well, however, to consider for a moment some of the leading features of the international trade in butter and cheese during the past season. If we take the imports of butter and cheese into the United Kingdom we have a fair presentation of the world's commerce in these articles, together with the names of most of the countries participating in it. The following table will be of interest in this connection.

IMPORTS OF BUTTER AND CHEESE (QUANTITIES ONLY) INTO THE UNITED KINGDOM FOR TWELVE MONTHS ENDED NOVEMBER 30, 1911 AND 1912.

From	Butter		Cheese	
	1911	1912	1911	1912
Russia	71,534,624	77,019,152	....	....
Sweden	40,618,256	37,195,760	....	....
Denmark	193,914,496	177,649,136	....	....
Netherlands	11,992,960	12,499,648	23,822,400	28,708,736
France	20,309,072	26,543,440	....	....
United States	2,611,392	290,864	16,851,856	2,839,872
Argentine	1,500,912	6,733,216	....	....
Australia	99,467,648	65,211,328	1,411,424	159,264
New Zealand	35,971,936	36,817,536	46,307,296	65,009,728
Canada	6,934,928	4,256	170,684,976	151,238,416
Italy	....	....	8,504,048	9,887,808
Germany	26,880	....	....	....
Other Countries	9,404,080	5,597,424	3,522,176	3,458,896
	494,287,184	445,561,760	271,104,176	261,302,720

It will be observed that large quantities of butter were received from Russia, The Netherlands, France, Argentine Republic, and New Zealand in 1912 as compared with 1911. On the other hand, Sweden, Denmark, United States, Australia, and Canada sent smaller quantities, the total net decrease being over 49,000,000 pounds. With respect to cheese we have a large increase from New Zealand and a corresponding decrease from Canada. Australia is still suffering from drought, which accounts for a further drop of 30,000,000 pounds in the exports of butter from that country. The apparent increase from the Argentine is owing to the shipments in 1911 being abnormally low. There are no signs of any permanent increase from that country. The increase in cheese and butter shipments from New Zealand probably have greater significance for Canadian dairymen than any other figures in the foregoing table. Conditions in New Zealand point to a continued expansion of cheese and butter manufacturing in that country. The returns from dairying are so much higher per acre than they are from sheep farming, that large areas which have been carrying sheep since the country was first settled are now being cut up into smaller farms for milk production.

CANADIAN EXPORTS.

In the years 1909, 1910, and 1911 the value of our total exports of dairy produce increased by several million dollars, but in the figures for 1912 we are confronted with a decrease in the quantity of all products and a decrease in total value of $5,000,000 as compared with 1911. (These are the unrevised figures of Trade and Navigation, which may be changed later.)

The following table will be useful for comparison:—

The Total Exports of Dairy Produce for twelve months ended November 30th, 1910, 1911 and 1912 were as follows:

(Unrevised Statement of Trade and Navigation).

QUANTITIES

Products		1912	1911	1910
Cheese	Lbs	140,837,605	168,256,026	182,893,660
Butter	"	553,160	9,753,386	3,736,369
Casein	"	328,543	1,172,263	
Condensed Milk	"	238,729	6,209,162	7,655,939
Milk, fresh	Galls	4,280	291,250	
Cream	"	606,168	1,075,765	1,651,972

VALUES

Products		1912	1911	1910
Cheese	Lbs	$18,790,019	$21,208,567	$20,920,172
Butter	"	144,328	2,089,828	863,846
Casein	"	14,258	41,299	
Condensed Milk	"	17,203	440,438	452,760
Milk, fresh	"	755	2,285	
Cream	Galls	559,314	934,550	1,594,758
Totals		$19,525,877	$24,716,967	$23,831,536

Canadian statistics do not show a single pound of butter as having been shipped to Great Britain since the first of April last, but the accounts relating to Trade and Navigation for the United Kingdom credit 224 pounds of butter as coming from Canada during eight months ended November 30th last. Of course, shipments to the Old Country do not represent our total export, as there is a regular business in tinned butter from the Maritime Province to the West Indies, and a quantity of inferior butter goes regularly to the United States, but we have to admit that the export of butter from Canada during 1912 was the smallest since 1850. We are also confronted with the further and rather astonishing fact that our imports of butter during the past year have greatly exceeded our exports. Under these conditions Canada must be listed among the butter importing countries of the world.

These figures do not take account of the stocks of cheese on hand at the close of the period in each year, but if we assume that they were about the same at the end of November last as they were in 1911 the decrease of 28,000,000 pounds is the largest for several years and just double the decrease of 1911 as compared with 1910.

CREAM SHIPMENTS.

The decrease in cream and casein shipments go together, as the casein is made chiefly in cream shipping factories. No one who has the interest of the Canadian dairying industry at heart will regret the decline in the export of cream. Of course, the factories cannot be blamed for taking advantage of this outlet when it gives them better returns than can be got through the manufacture of butter or cheese, but there is satisfaction in the fact that the state of our markets made this trade less attractive last season than it was in 1911.

The Ups and Downs of the Canadian Exports of Butter.

Just here it may be interesting to take a glance backward at the record of the export of butter from this country. Small quantities were exported as early as 1800, but it was not until the forties that a regular trade of any importance was established. In the year 1850 the quantity exported was 1,319,920 pounds, which was increased to 7,275,426 pounds in 1860. In 1868 the exports had risen to 10,000,000 pounds, and down to 1882 the quantity varied from that figure to over 19,000,000 pounds annually, after which date it declined rapidly until in 1890 it was less than 2,000,000 pounds. This decline was partly due to the expansion of the cheese-making industry and partly to the relatively poor reputation of Canadian butter abroad at that time.

Other countries had been making great advances in the art of butter-making, while little progress has been made down to that time in Canada; and further, our storage and transportation facilities were inadequate for a successful export trade in the face of the competition then existing. The advent of Australasian butter on the British market about this time supplied more of the winter requirements with a freshly made article, and thus Canadian stored butter found a very poor demand at a correspondingly low price. On the other hand, Canadian cheese was in favour, the price paid for it was relatively high, and, consequently, it gave better returns to the farmer. This encouraged the making of cheese.

In 1895 a move was made to provide cold storage space on ships sailing from Montreal, which together with the erection of mechanical cold storages for holding the butter, gave a new impetus to butter-making in Canada. The exports again increased until the maximum of 34,000,000 pounds was reached in 1903. Then began that era of marvellous expansion and increase of population in Canada, of which we have happily not yet seen the end, but which has already so effectually checked the growth of our total foreign trade in dairy products. The cheese trade has not been affected by the new conditions to the same extent that the butter trade has, for the reason that cheese is by no means the universal article of diet that butter is, and the great majority of Canadians will do without it and not miss it very much. Butter occupies a much different place in the estimation of the people generally, who look upon it as a necessity. This makes it more subject to the laws of supply and demand.

Imports of Butter.

The volume of our imports of butter during the past year or two, and especially during the past few months, has attracted a good deal of attention, and has given rise to a good deal of comment. It certainly is rather surprising that a great dairying country like Canada should find it necessary to go to the opposite end of the earth for so large a proportion of its supply of butter. During the twelve months ended November 30th, which period we have taken as a basis for our comparisons, the total imports were 6,694,722 pounds, and the indications are that for the fiscal year which will end on March 31st next, the figures will approximate 7,000,000 pounds.

The bulk of this butter consists of direct shipments from New Zealand to Vancouver to supply the Pacific Coast trade. It may be of interest to Ontario producers to learn that this New Zealand butter is finding so much favour with consumers at the Pacific Coast that they are paying a premium of one and two cents per pound above the price at which butter from Eastern Canada may be obtained.

There is, however, no serious reflection on Canadian butter makers in this fact. The New Zealand butter, as it arrives in Canada, is a freshly made grass product which is carried during the three weeks voyage from New Zealand at a very low temperature in the ship's refrigerator. In all probability it suffers less deterioration in transit than does the butter from Montreal or Western Ontario in going across the continent in a refrigerator car. The preference thus shown, however, indicates that the trade, which is now so well started, may become a permanent one, no matter whether Canadian butter is equal to the supply or not.

Before we leave this matter of the importation of butter by Canada, it may be well to point out that it is not by any means a new thing, as many seem to think it is. We have imported some butter regularly for over twenty years, in 1896 the quantity imported was 289,435 pounds; in 1903 it had risen to 539,711 pounds, and in 1908 to 738,200 pounds.

Dairying Not on the Decline.

The decrease in our exports during recent years has led many people to think that the dairying industry in Canada is on the decline, or at best not making any progress. The farmers have been blamed in some quarters for their lack of enterprise. The Governments have been urged to "do something" to have this so-called reproach removed from Canadian agriculture and so on. These are superficial views of the situation, and opposed to them I make the assertion that there *has been as much increase in milk production, taking Canada as a whole, during the past decade as there was during any other similar period in the history of the industry.* Our estimate of the situation is often wrong, because we fail to realize the quantity it takes to provide an increased population of say two and a half million people with milk and milk products; nor have we taken into account some new demands which have lately arisen. In one way or another Canadians are consuming between 30,000,000 and 40,000,000 dollars' worth a year more of dairy products than they did ten years ago. Let me give you an illustration of this increase. During the period when the creameries in Alberta and Saskatchewan were operated by the Dominion Government, it was a part of my duty to find a market for the butter produced therein. In 1903 the total output of creamery butter in these Provinces was less than three-quarters of a million pounds. At that time there was no butter being shipped to the Western Provinces from Eastern Canada, and yet we found it necessary to export over 100,000 pounds to Great Britain to avoid a serious glut in the British Columbian and Prairie markets.

Now, contrast that state of affairs with the past year. In the first place, Alberta and Saskatchewan produced about 4,000,000 pounds of creamery butter in 1912; at least 200,000 boxes or 11,200,000 pounds were shipped from Ontario and Quebec to points west of the Great Lakes; 100,000 boxes or 5,600,000 pounds will be imported from New Zealand (April, 1912, to March, 1913), making a total of 20,000,000 pounds in 1912-13, as against half a million pounds which met all requirements in 1903-04. These figures refer to creamery butter only, but there has also been a very large increase in the output of dairy butter in the Western Provinces, most of which is consumed locally. I have no statistics for Manitoba, but the conditions in that Province do not differ greatly from those in Alberta and Saskatchewan. Now, when we consider that the population east of the lakes has increased very nearly as much during this period as it has in the Western Provinces, we get some idea of why our exports have fallen off.

Cream and Ice Cream Consumption.

Butter is only one item of several. I have been impressed, as every one who observes these things must have been, by the enormous increase in sweet cream consumption in the towns and cities and the great development of the ice cream business during the past six or eight years. We have recently made an attempt to collect some statistics of the cream and ice cream trades in 24 cities throughout Canada, and after a careful estimate I find that during 1912 the quantity of cream used in the manufacture of ice cream in these places was equivalent to nearly 2,000,000 pounds of butter or equal to over 4,000,000 pounds of cheese. If we add to this the sweet cream sold, we have a total which represents over 6,000,000 pounds of butter or 13,000,000 pounds of cheese. This estimate takes no account of the hundreds of small businesses scattered through all the smaller towns. The surprising thing about this trade is that, as far as the ice cream is concerned, it has developed within the last six or eight years, and most of it is of much more recent origin. Of sixty establishments from which returns were obtained, all but thirteen have been started since 1904. The managers of these establishments say that their trade in 1912 showed an increase of 20 per cent. over 1911, notwithstanding the fact that it was a phenominally cool season and very unfavourable for the consumption of ice cream.

If we add to this increased consumption of butter and cream the enormous increase in the quantity of milk required for home use, to say nothing of the condensed milk business, we do not find it difficult to account for a lack of growth or even the decline in our export trade. I am satisfied that our home consumption of milk and its products is now easily up to the $100,000,000 mark.

International Figures Deserve Attention.

Now, I have not taken the trouble to collect these figures merely to state a few more or less interesting facts. My object is rather to direct some attention to what is undoubtedly the most important market for the dairying industry in this country. Our attention has in the past been focused on the export trade, but it must be evident that we need to shift our point of view, if the whole industry is to receive proper attention. I do not want to be understood as advocating that we should relax the efforts which have kept our exports up to the present high standard of quality, because that would be a very great mistake so long as we have anything to export; and I hope and believe that we shall have a share of the international trade for many years to come.

This Association has always been representative of the cheese factory and creamery interests, but it would seem as though the time had arrived when it should be more inclusive in its activities and take some notice of other branches of the industry, such as the city milk and cream trade, for instance, unless it may be thought advisable to have separate organization to deal with these branches specially.

Cost of Distribution.

Cheese and butter producers in Canada have so far had every reason to congratulate themselves on the low cost of distributing their products. The difference between the price which the producer receives for his butter and cheese and that which is paid by the consumer is less than for almost any other article produced on the farm. This applies more particularly to cheese and butter retailed in Great Britain than it does to that which is sold in Canada. The retail price of cheese is usually much lower in Great Britain than it is in this country for goods of the same character and quality. Best "Brockvilles" were being sold in the retail shops in London three weeks ago at 15½ to 16 cents per pound, while consumers in Ontario were paying 18 to 20 cents and even more. The circumstances under which the cheese is retailed in the two countries differ sufficiently to partially account for the higher cost of distribution in Canada, but there is more difference than there should be, and it is a point which there should not be lost sight of. Canadian dairymen will do well to watch the disposal of their products in the home markets to see that the cost of distribution does not become still more excessive, or that the tolls taken by middlemen are neither too large or too many. I have no blind opposition to middlemen, because I believe that the successful distribution of produce calls for special experience and training, neither of which is gained through the manufacturing end of the business as at present organized, but under the existing conditions in this country, with business in all lines developing at a marvellous rate, some crudities are liable to creep in or excresences may develop even when the intentions are of the very best. The vagaries of the market must always be allowed for, and the speculator who must lose when it goes down is entitled to his advantage when it goes up, but it is decidedly in the interests of the producer that the cheese which he sells at 12 cents per pound should retail at 16 cents rather than at 20 cents, and the why and wherefore of the difference which I have mentioned is a matter worthy of his attention.

THE MARKET OUTLOOK.

The world's markets for dairy produce can hardly be said to be optimistic as they were at this time last year, but it is rather difficult to see what reason there is for any depression. Times are good in the Old Country, and on the whole the statistical position would appear to be rather better than it was a year ago.

Of course, I must be considered a good deal of an amateur on this phase of the situation, but it would appear to me that the announcement to the effect that practically the whole of the New Zealand outputs for 1912-13 are to be shipped on open consignment must have had a "bearish" effect on the market. The knowledge that this large quantity of butter and cheese will be coming forward for sale during the winter months would naturally give the British merchant a feeling of easiness in the matter of obtaining his requirements. Last year the position was reversed, and nearly all the New Zealand factories contracted their outputs at the beginning of the season or say during the months of September and October. This weak feature of the market at the present moment will probably have disappeared by the time our new season begins, and on the whole I think we can safely say that the outlook for prices is good.

OUTLOOK FOR PRODUCTION.

My last point will be a brief reference to the outlook for production and then I shall have finished. Looking over the Dominion as a whole we find evidence of considerable progress in some quarters. As I have already mentioned, the Provinces of Alberta and Saskatchewan are increasing their output of butter quite rapidly, and the growth would be more rapid if it were not for the difficulty of securing cows. The Dairy Commissioner for Alberta informs me that the demand is very keen and is far from being satisfied. The opening up of the Peace River and Northern British Columbian districts by the new lines of railway will bring large areas of excellent stock country within the reach of settlement, and it is the opinion of those who know this country that dairying is bound to be one of its chief industries. Ontario is the only other province for which we have any comparative figures of production. In the 1911 report of the Bureau of Industries for the Province, we find that with a decrease of exactly one hundred in the number of factories in operation and a decrease of 106,000 cows, the production of cheese has increased since 1908 by over 6,000,000 pounds, and the output of creamery butter has increased to the extent of nearly 4,000,000 pounds, or about 50 per cent., during the same period.

Taking these facts together there is a fair assumption that there has been a very marked improvement in the annual yield of milk per cow. Of course, there is nothing to show how much the above increase may be due to a diversion of milk or cream from the farm dairy to the cheese factory or creamery, but we have proof from other sources of such improvement, and I feel that I am justified in giving some credit for the satisfactory condition of things to the cow testing movement which I have the honour to direct at Ottawa. This growing interest in this matter of the improvement of dairy herds is one of the most hopeful and encouraging signs of the times in relation to dairying. With prices going up and the yield of milk increasing—that is to say with profits increasing at both ends—the production of milk must surely be stimulated.

There is another movement which is calculated I think to have a considerable influence on the future of the dairying industry in Canada, and that is the introduction of the milking machines upon which a fairly good start has already been made. Those who follow the course of dairy events abroad will know that the use of milking machines in New Zealand and Australia has become quite general, and it has undoubtedly been one of the factors in promoting the increased output in those countries. Quite a large number of milking machines have already been installed in Canada, and I am of the opinion that the time has come, considering the labour and other conditions which surround the production of milk, when a more general use of the milking machine would be an advantage in this country.

I do not think the milking machine is likely to be used for the smaller herds; but for the herds of fifteen to twenty cows and over, it seems to be entirely practicable. The use of the milking machines will encourage the keeping of more cows where the number is limited at present by the difficulty of getting milkers.

I have been obliged to treat this subject from a somewhat broader point of view than the title would indicate. It is impossible to discuss the dairying industry of Ontario as a unit in itself. The interests of this province in relation to dairying are so bound up with all the other provinces of Canada that what affects the Dominion as a whole affects Ontario and vice versa. Then, again, owing to the fact that butter and cheese are articles of international commerce whose prices are affected by the world's markets we can get an intelligent view of the outlook for Ontario or for Canada only by viewing the situation in the widest possible manner.

The proceedings of the afternoon concluded with a brief address by Mr. A. Hodgson, of Montreal.

EVENING SESSION.

Wednesday, January 8, 1913.

Hon. Senator Derbyshire occupied the Chair at the evening session on Wednesday.

Mayor Frank Hoag and Mayor-elect Rigney both spoke on behalf of Kingston, pointing out the progress which had been made by the city and dilating on its advantages. Delbert Godkin, warden, briefly extended a welcome on behalf of Frontenac County.

The Chairman in his reply to the addresses of welcome, on behalf of the Association showed his appreciation for the sincere reception which they had received.

He spoke of the good work being done by the Kingston dairy school, and complimented the city on her college, military school and educational facilities.

R. A. Pringle, K.C., M.P., Chairman of the Royal Commission of Weights, then spoke. After outlining the history of the Commission and its object, took up some of the more important defects in the system of weighing. He found that the trouble lay chiefly with the defective scales in the factories rather than with the weigher at Montreal. Mr. Pringle stated that all cheese shipped from New Zealand must be stamped by the official weigher, and also by the official grader, and that 2½ per cent. was allowed for shrinkage. Canadian cheese arrived on the British market very irregular as to weight, there being in nearly all cases a shortage. This trouble is caused by the shipping of the cheese direct from the hoop, and consequently there is considerable shrinkage with no allowance made by the weigher in Canada, and hence the cheese arrives on the British market short in weight. Mr. Pringle offered many suggestions for the improvement of these conditions, and anyone interested in this subject should write for the report of the Commission.

Geo. A. Putnam, Director of Dairying, gave an address along about the same line as indicated in the report of his address before the Dairymen's Association of Western Ontario. In the course of his remarks, Mr. Putnam appealed to the dairymen of the Eastern Section of the Province to go more largely into winter dairying—to make a business of producing milk and cream throughout the whole year. He regretted that the producers were not getting a larger percentage of the price paid for cheese in the retail stores of Canada, and urged the farmers to organize for the purpose of getting in closer touch with the consumer. The speaker regretted the tendency to ship the cheese from the factory before they were properly cured. It is impossible for the Instructors to do the best work when in many of the factories there are no cheese on the shelves to be examined at the time of the Instructor's visit.

ADDRESS.

J. A. Ruddick, Dominion Cold Storage Commissioner.

In addition to outlining the various activities of the Dairy and Cold Storage Division of the Dominion Department of Agriculture, Mr. Ruddick referred to the shipment of green cheese as follows:

"Before the New Zealand cheese became a factor in the British market, a large part of our summer-made cheese was stored for winter consumption. It would not have made very much difference then so far as the effect on the British consumer was concerned, if the cheese has been shipped green, because it was not eaten for several months, but now that the New Zealand cheese goes on the market during our winter season, there is no occasion to store Canadian cheese. It goes into quick consumption, and that is the chief reason why the shipping of green cheese is so harmful to our trade."

One other point, about the Official Referee: You all know that we had an Official Referee at Montreal for a good many years. He was removed simply because at the last he had absolutely nothing to do. There was no demand for his services. They have had the same experience in the United States where they kept inspectors at Chicago and New York, who were asked to make reports on the quality of the cheese and butter. This year they have withdrawn these officers. I have always contended that a Referee could be of great assistance to the cheese and butter makers and owners of cheese factories in the country if they would utilize his services."

REPORT OF DAIRY INSTRUCTOR AND SANITARY INSPECTOR.

G. G. Publow, Kingston.

I take pleasure in submitting my tenth annual report as Chief Dairy Inspector and Sanitary Inspector in Eastern Ontario for the season of 1912.

The work of instruction was conducted along similar lines to that of last season, and the same number of instructors were engaged in the work, viz., 24.

There were two changes on the staff this season, Mr. Mitchell replacing Mr. Dool in Ottawa district, and Mr. Linn replacing Mr. Lowery in Madoc district.

Following the custom of former years, a short special course of instruction was given the instructors at the Kingston Dairy School. This course has proven to be very helpful to the instructors and is much appreciated by them.

Rather than take up the valuable time of this convention with a detailed statement of the work in each syndicate, I have prepared a tabulated statement which will be found in the report of this meeting.

Cheese Factories.—895 cheese factories were in operation (which is 18 less than last season). This reduction is due to the fact that 6 were burned and 18 closed. Four of the factories burned down were re-built. Two were operated as creameries and two were purchased by the Dominion Government and a model combined cheese factory and creamery built in their place, for which the Government is to be commended.

These 895 factories received from the regular instructors 1,404 full day visits and 4,958 call visits. In addition, they received 510 visits from Mr. Singleton and myself.

52 factories made improvements in buildings or plant, the estimated expenditure, including new buildings, being $95,044. A pleasing feature of this expenditure was the equipping of ten factories with cool-curing rooms. 80 factories pay for milk according to quality. 52 pay by straight fat and 28 add 2 to the reading.

106 factories pasteurized the whey, the average acidity of the pasteurized whey being .36 per cent. as compared with 1.04 per cent. in the unpasteurized.

The number of factories shipping cream to the United States, was 22 as compared with 14 last season.

121 factories manufactured whey butter, and the total lbs. of butter made by same from May 1st., to Nov. 1st., was 385,854 lbs., which is 26,999 lbs. more than for the same period last season.

Patrons: The number of patrons delivering milk to the cheese factories was 32,425, which is 682 less than last season. 2,695 of these were personally visited by the instructors, and in nearly every case they showed a willingness to follow suggestions offered, as to the proper care of milk on the farms, and the general report is, that the milk was delivered to the cheese factories in better condition than in any previous year.

Samples Tested for Adulteration.—30,895 samples of milk were tested for adulteration. Of this number, 78 were found to be deteriorated. After an investigation had been made, 60 cases were handed over to the Official Prosecutor, to be dealt with. 57 of these were convicted, and fines ranging from $5.00 to $50.00 were imposed, amounting in all to $1,333. It is pleasing to note that the number of deteriorations is becoming less from year to year, the number this year being the smallest in my experience.

Milk Delivered to Cheese Factories.—The amount of milk delivered to the cheese factories from May 1st, to Nov. 1st, was 1,011,725,699 lbs, and the amount of cheese manufactured from same was 94,696,819 lbs., which is 1,062,251 lbs. more than for the same period last year, or, allowing 85 lbs. as the average weight of a cheese, this would show an increase of 12,497 cheese.

The average pounds of milk required to make a pound of cheese, was 10.68 as compared with 10.74 last season. At first sight this does not seem to be very much of a difference, but when figured out from the 94,696,819 lbs. of cheese manufactured, it amounts to 495,171 lbs. At 13c. per lb. (which was the average selling price of the cheese for the six months) this would mean a gain to the producers, of $64,372.23.

As a result of the knowledge gained by my trip to Europe last season, and after discussing matters with the instructors, it was decided that a special effort be made to improve the texture of the cheese, also to reduce the pounds of milk required to make a pound of cheese, (keeping in mind that quality should be the first consideration). To do this, instructions were given to set the milk in a sweeter condition, and to salt the curds lighter than had been the general practice, and the results have been very gratifying, as the average is lower this year than for several years.

Quality of the Cheese.—The quality of the May and June cheese was exceptionally fine. Very few complaints were made regarding acidity or off flavoured cheese, but as soon as the weather became warm, came the old story of over-ripe and gassy milk, and before the makers realized what they were up against, a considerable quantity of more or less open cheese had been placed on the market. Notwithstanding this, I consider that taken on the whole, the quality was superior to that of former years, although there is still much room for improvement.

Creameries.—27 creameries were in operation this season, and were regularly visited by Mr. Singleton and the instructors in whose groups they happened to be located, receiving in all 33 full day visits and 19 call visits. In the majority of cases when making a call visit, half a day was spent at the creamery. With one exception, all of these creameries were reported as being kept in a clean, sanitary condition.

3,898 patrons supplied milk to these creameries, and 109 of these received personal visits from Mr. Singleton.

20 creameries are equipped with good refrigerators, (2 more than last year). 8 use scales for weighing the samples of cream used in testing, (3 more than last year).

The average per cent. of fat in the cream was 29 per cent. as compared with 27.5 per cent. last year. The cream was reported as being delivered in a much better condition.

The amount of butter manufactured from May 1st to Nov. 1st, was 2,301,219 lbs., which is about 10,000 lbs. less than last season, for the same period. The average selling price of the butter being 26¾ c. per lb., which is about 3c. per lb. higher than in 1911. The quality was reported as being much superior to that of last year, particularly in flavor.

None of the butter was exported, as it was all required for home consumption, the supply not being equal to the demand. 61 samples were tested for moisture, the results ranging from 17.4 per cent. down to 11 per cent., with an average of 14.56 per cent.

A new feature of the work this year was the carrying out of a salt test by Mr. Singleton. 32 samples of butter were tested for salt, the results ranging from 4.25 per cent. to .88 per cent., with an average of 2.28 per cent.

Syndicate.	No. of factories in group.	No. of full days spent in them.	No. of call visits given.	No. of patrons in group.	No. of patrons visited.	No. of samples tested for adulteration.	No. of samples deteriorated.	No. of samples tested by fermentation test.	No. of factories pasteuring whey.	No. of factories making whey butter.	No. of factories shipping cream.
Almonte	40	80	163	1,601	163	1,796	4	44	....	....	....
Alexandria	35	60	160	1,055	20	650	2	443	1	....	....
Brockville East	44	52	254	1,469	34	1,144	....	241	20	8	1
Brockville West	42	76	194	1,029	82	1,628	5	127	14	14	....
Brockville North	43	76	192	1,079	35	1,076	1	56	....	20	....
Belleville	39	45	260	1,790	147	1,500	5	75	4	....	....
Cornwall	35	63	245	1,073	108	1,109	5	229	17	....	3
Chesterville	36	32	193	972	42	539	....	42	6	6	3
Campbellford	38	51	259	1,399	63	2,332	4	......	....	....	....
Finch	32	55	170	1,034	100	1,434	5	160	4	1	....
Kemptville	39	97	203	1,480	105	1,402	5	9	4	4	1
Kingston	36	73	167	1,136	162	1,851	6	89	....	4	2
Lindsay	22	38	128	1,123	62	1,064	1	27	5	1	....
Madoc	28	107	75	814	86	103	3	50	1	....	....
Morrisburg	41	49	209	1,182	76	1,274	3	146	2	16	5
Ottawa	34	52	174	934	53	1,013	3	38	1	5	....
Ottawa East	39	75	230	1,197	92	876	6	137	....	2	1
Ottawa West	35	34	171	1,478	91	753	2	224	5	4	....
Perth	36	41	148	1,252	132	970	....	62	2	5	....
Peterboro'	34	45	313	1,455	359	547	....	......	....	8	....
Picton	36	62	267	2,634	264	2,065	6	120	16	18	3
Plantagenet	43	55	321	1,259	71	1,137	8	82	....	....	1
Napanee	42	35	205	2,738	217	3,758	3	37	3	5	....
Vankleek Hill	45	50	255	1,214	131	874	1	69	....	....	....
Outside Factories	1	1	2	28	......	....	....	......	1	....	....
	895	1,404	4,958	32,425	2,695	30,895	78	2,507	106	121	20

Some of the wholesale men made complaint as to the condition in which creamery men shipped their print butter. Evidently the boxes had been used on several occasions, and had become damaged and dirty. I would recommend that creamery men pay more attention to this matter as it seems too bad to have good butter detracted from by being shipped in unsightly packages.

Factory Water Supply.—During the season 31 samples of water from cheese factory and creamery wells, were expressed to Dr. Connell, for a bacteriological examination, and of this number 13 were found to be entirely unfitted for factory use, and were condemned. The managers of the factories from which these samples of water were obtained, were asked to provide a new water supply.

General.—The matter of cheese boxes was a very difficult problem for some of the factory men this season. The quantity was very limited, and in some cases they had to pay as high as 20c. per box. Several factories were forced to close before the end of the season, not being able to get boxes, even at that price. Owing to the extremely wet weather experienced this season, a large number of the boxes arrived at the factories in a very wet condition, and I fully expect that complaints will be received from the Old Country regarding excessive mould, and defective rinds, as a result of the cheese having been shipped in damp boxes.

Lbs. of butter made from May 1st to November 1st.	Average per cent of fat in whey.	No. of factories paying by tests.	Lbs. of milk delivered from May 1st to November 1st.	Lbs. of cheese made from May 1st to November 1st.	Average lbs. of milk to make 1 lb. of cheese.	No. of factories having cool curing rooms.	No. of factories making improvements on buildings or plants.	Estimated expenditure including new buildings	No. of factories kept in sanitary condition.	No. of new silos built.
								$		
....	.21	2	46,000,604	4,371,515	10.52	1	40	84,500	40	26
....	.21	4	30,226,492	2,864,621	10.55	....	6	2,100	32	12
18,311	.22	3	53,767,699	4,976,172	10.80	2	36	7.170	42	24
45,950	.24	4	54,313,497	4,966,903	10.93	3	29	3,850	37	40
61,696	.22	....	53,567,416	4,869.765	11.00	1	25	3,450	41	7
....	.23	....	54,227,030	4,968,697	10.90	7	6	3,000	39	18
....	.20	14	39,475,486	3,763,605	10.48	2	35	5,815	24	19
21.070	.22	8	32,795,280	3,117,422	10.52	....	10	7.000	30	50
....	.26	....	48,133,975	4,341,901	11.08	3	29	4,505	38	22
3,800	.20	....	35,510,954	9,339,188	10.63	....	13	2,387	24	30
10,795	.21	9	47,141,396	4,407,152	10.69	....	24	4,609	37	19
14,611	.24	2	42,324,767	3,962,059	10.61	....	4	1,600	33	50
3,300	.20	5	20.147.246	1,862,680	10.81	2	18	1,350	21	15
....	.25	....	25,698,526	2,397,857	10.71	2	1	3.379	25	17
49,900	.22	1	48,328,280	4,612,131	10.47	1	41	2,500	30	11
12,901	.21	5	31,227,695	2,929,545	10.66	1	15	2,260	29	33
6,516	.25	8	35,912,292	3,360,432	10.68	....	20	4,198	36	22
12,419	.20	1	33,031,356	3,148,518	10.48	5	34	3,552	34	29
21.587	.20	....	33,411,070	3,241,292	10.30	....	8	1,558	33	30
21,652	.21	10	33,720,721	3,055,950	10.03	7	16	7,951	29	54
61,021	.22	....	69,527,551	6,466,191	10.75	13	28	6,500	33	60
....	.23	....	25,523,546	2,499,314	10.21	....	31	4,710	37	7
20,825	.23	....	75.380,101	7,174,591	10.51	4	30	3,560	35	30
....	.23	4	41,830,219	3,951,461	10.51	....	16	3,500	43	25
....	......	....	502,500	47.857	10.50	....	1	40	1	....
385,854	......	80	1,011,725,699	94,696,819	10.68	54	521	$95,044	803	650

With the exception of a few cases there was a marked improvement in the sanitary condition of the cheese factories. In twelve cases, however, we were obliged to give the factory men special warning that unless the necessary improvements were made by a certain time, proceedings would be taken against them. I am pleased to say that this was not necessary as our recommendations had been carried out by the given time. In connection with the improvements made at these factories, seven septic tanks were installed.

Owing to the poor location of many of the factories, drainage has been a difficult problem to deal with, but where septic tanks have been installed, the results have been found quite satisfactory.

The weakest points in connection with the manufacture of our cheese are: 1st—Lack of facilities for the proper control of the temperature of the curing rooms. 2nd—Over-ripe and tainted condition of some of the milk during the warm weather. 3rd—Lack of competent and sufficient help to enable the makers to manage their factories successfully at all times.

The greatest needs of the creamery business are: 1st—Greater production of milk and butter per cow. 2nd—Improved quality of raw material to obtain which we need more frequent washing of the separators and more efficient cooling of the cream. 3rd—More care and skill on the part of some of the makers, and better refrigerators in some of the creameries.

FACTORY MEETINGS.—Since our last convention, 19 district meetings were held, and 210 annual factory meetings were attended by one or more of the instructors. In addition to these, 5 special meetings for cheesemakers were held at the beginning of the season, and the results following these meetings has been so marked, that we feel warranted in holding several more this season.

CONCLUSION.—Before closing I wish to thank Mr. Singleton and the Instructors for the manner in which they performed the duties allotted to them. They have at all times showed a willingness to carry out my suggestions, and have put forth an honest effort to bring about improvements in their respective districts.

I would also like to express my appreciation of the ready assistance which the Directors of this Association have at all times given to the instructors and myself in our efforts to improve the qualtiy of our dairy products.

SENATOR DERBYSHIRE moved, seconded by MR. SANDERSON, "that we urge the Royal Commission to recommend to the Government, the appointment of an Official Referee."

MR. RUDDICK: Before you put that motion, I wish to speak to it. From the remarks that have been made, it might be inferred that the Referee should not have been removed. The Referee was not removed. He simply passed out of existence because there was nothing for him to do. I do not quite agree with Mr. Publow's view of the matter that if there had been a Referee there last year, he would have known all about these cheese. He would not have known, because according to the conditions under which the Referee worked, he would not have been asked to see the cheese, and I want to point out that a Referee will be of no use unless the factories take advantage of his services.

SENATOR DERBYSHIRE: What I mean is this: that this Referee is not to sit around and wait to be called, but he is to walk right around among these warehouses and keep himself posted.

MR. RUDDICK: Then he won't be a Referee.

SENATOR DERBYSHIRE: We want him to be posted, and he can be called on when required.

MR. RUDDICK: The men we had in Montreal were active, up-to-date men, but their opinion was not wanted by the factories.

THE CHAIRMAN: You might just state the condition on which the Referee was there, and I think that will clear up the matter.

MR. RUDDICK: The history of the Referee's position in Montreal is this: In 1901, I went to Montreal for two or three months to act as Referee to be called in in the event of any dispute between the buyers and sellers. There was no condition as to who should call me in. Any request brought in the Referee. The Referee was first appointed at the suggestion of the factory men in the eastern townships, and the idea the factory men had at that time was that if a Referee was appointed it would do away with many rejections and cuts. The factory men had an idea that the cuts were wrong, and that they were being imposed on. I do not know whether they were or not, but I know when the Referee was called in to examine the cheese or butter, almost invariably he found it was wrong. The buyers do not call in a man who is a good judge of butter and cheese unless they know there is something wrong. There were a few cases in which the judgment of the Referee was contrary to the judgment of the buyers. That went on for a year or two. There were other Referees appointed, and the factories began to complain and said they did not want the Referee to examine their cheese, because they found, in almost every case, the Referee's report was against them, and the complaints got so strong that at last there was nothing else to do but to make a ruling that the Referee should not be called in except on request of both parties.

I want to make myself clear, as I have to do with the appointment of that Referee in Montreal, and I would like to see a man there who could give advice to the instructors and who could get to the salesman and cheesemakers and tell them what was wrong with the cheese; but the present attitude of the factories is that they do not want to know these things. I am sorry that is the attitude of the factories. They ought to be glad to receive information of that kind from an independent man. Such information from an expert is worth a great deal more than it is from the average buyer. If I were a cheesemaker, I would pay no attention to what the average buyer told me, because nine times out of ten, he is wrong. (Applause.) A great deal of harm has been done by inexperienced buyers attempting to give advice on cheese making.

Mr. Hodgson: I am very glad to hear Mr. Ruddick give that explanation. Mr. Ruddick will bear me out in saying that the merchants were delighted at the prospects of having some one man whom they could call in. I have no hesitation in saying that any farmer or cheesemaker who objects to the Official Referee looking after these cheese, must be afraid of his quality and the sooner he is shown up, the better. It is time we had some plain talk about that matter. I will tell you the difficulty the merchants have in that respect: All of us feel that we have as clever inspectors as we can get, but I am very much afraid my inspectors sometimes write to the factory man telling him he is wrong and giving him the wrong instructions about how to remedy the evil. There are plenty of merchants in Montreal who are good judges of cheese, but if you put them to make cheese, they would not know how to start about it.

When Mr. Ruddick came to Montreal as the first Referee, he was kept pretty busy for some time; and if another Official Referee is ever appointed in Montreal, he must be a good man. The farmers found the complaints were getting twice as numerous as before he was appointed. Mr. Publow has come to Montreal frequently and complained bitterly of the action of the Montreal merchants in passing cheese that should have been complained about. I am quite free to admit that we have some scapegoats in Montreal. It is quite possible that some cheese merchants who have made a bad bargain called in the Official Referee in hopes that he might find fault with the cheese, but Mr. Ruddick will tell you there never was a kick on the part of the merchants with the judgment given whether it was against them or not. If the farmer is honest and square, I cannot see why he should object to an impartial referee. That Official Referee's usefulness ceased the moment the Department at Ottawa changed his instructions, and told him that he was not to inspect the quality of the cheese unless the merchant produced an order from the factory that he was to do so.

Mr. Publow said we would not have had such a long term of faulty cheese if we had an Official Referee at Montreal. We receive fifteen or twenty thousand boxes a week, and if you divide that into sixty or seventy lots, and if a clerk in our office has to sit down and write a report on every lot of cheese that comes into the place and at the same time carry on his own regular work, you would not get a report very rapidly. You all know that the competition between the buyers is just as keen as it is among the manufacturers of cheese, and the buyer sometimes will not say anything about the quality for fear it will prejudice him in the eyes of the maker, and he hopes that he will get a better quality the next time. There is no use in having a Referee at Montreal if we have to get permission from the farmer before we can call him in. The only fair way this Royal Commission can look at that question is to say: "What is in the best interests of the dairy business of this country? and we will recommend what is in the best interest of the country whether it hurts the farmers or the merchants."

The first of September cheese was the worst we received this year, and the cheese have shown more moisture on account of the heavy rains. If the Montreal merchants make a loss on cheese it comes out of the farmer.

The Chairman: Probably it would be well to refer this motion to the Resolution Committee, and have the resolution brought in to-morrow forenoon.

A NEW RAPID METHOD FOR THE ESTIMATION OF CASEIN IN MILK.

Prof. W. O. Walker, Department of Chemistry, Queen's University, Kingston.

During the last few years Canadian manufacturers have been waking up to the fact that in order to compete successfully in this age of competition, it is absolutely necessary to put their industries under scientific management. The time is rapidly passing when "rule of thumb" and "guess work" methods can be employed to advantage. The dairy industry is to be praised for being among the foremost to make use of scientific principles and methods. For a number of years this industry has been employing the principles of bacteriology represented by cleanly methods of handling milk, pasteurization of milk, the use of a "starter" in butter making, etc. For some years also the principles and methods of chemistry have been employed. This is particularly noticeable during very recent times; as examples, may be quoted the Babcock test for fat, the volumetric test for acidity, the test for moisture in butter, curd, and cheese, the test for salt in butter and the test for casein in milk.

Perhaps one of the uppermost questions in the minds of cheesemakers to-day is that of the fairest method of paying for milk received for cheesemaking purposes.

We are all pretty well acquainted with the various methods employed in the past, and know that none of these methods is directly dependent on, nor bears any direct relation to the amount of casein in the milk, and yet the casein is the principle constituent of cheese.

I do not purpose enlarging on the merits or defects of the various methods of paying for milk at present in vogue, nor do I purpose giving analytical data to prove that the casein content of milk should be considered when milk is being paid for for cheesemaking purposes. I may say, however, that I think all dairyman agree that, were it possible for the cheesemaker to determine the casein content of milk without involving too great an expense of time, and without introducing any large complication in computing values, then most assuredly we should pay for the milk according to both its fat and casein contents.

I intend to-day to describe and illustrate a very rapid and simple method for determining the content of casein in milk which has been worked out in my laboratory, and under my direction.

The method, in short, consists in estimating by means of standard one-ninth normal alkali, in general use in our cheese factories, the acid liberated from casein by the action of the commercial solution of formaldehyde used so generally as a disinfectant and germicide.

It has been found by chemists that proteins, of which casein is an example, are very complex substances, compound for the most part of many, what we chemists call, amino-acids, combined in a very complex way. It has, further, been proved that these individual amino-acids contain both alkaline, or basic, groups, and acid groups, or parts. Further, when these substances are caused to combine with one another they do so in such a manner that some of the alkaline, or basic groups, and also some of the acid groups remain unaltered, with the result that the product is usually, if I may use the expression, both alkaline and acid, or, in other words, neutral. However, if we treat such a substance, which we shall call a protein, with formaldehyde we find that the formaldehyde undergoes chemical combination with the alkaline or basic part of the protein molecule, thus destroying or "fixing" its alkaline function, but leaving the acid part of the molecule free to act, with the result that we get a strongly acid reaction toward indicators. If we now titrate this acidity with a standard alkali we have a means of determining the amount of protein present. Of course we must know the "protein value" of the alkali. This "protein value" in the case of milk casein has been determined in my laboratory. We determined this in the following manner.

We determined the amount of casein by the chemical method in a large number of samples of milk, using ten cubic centimetres at a test. At the same time we found the amount of one ninth normal alkali necessary to neutralize the acid liberated from the casein by formaldehyde in ten cubic centimetre samples of the same milks. We then estimated the average ratio existing between the amounts of casein present and the amounts of alkali used, and expressed this ratio in percentage of casein. The result was that with 10 c.c. samples of milk, 1.63 c.c. of alkali corresponded to one per cent. of casein. That is to say, for each 1.63 c.c. of alkali used we found one per cent. of casein present in the milk of a ten c.c. sample. In order, then, to determine the percentage of casein present in an unknown sample of milk, one uses a ten c.c. sample and multiplies the number of cubic centimetres of alkali used by 1.63.

In order to simplify the calculation we now use a 16.3 c.c. pipette to take the sample of milk, and read off directly on the burette containing the alkali the percentage of casein, that is to say, the number of cubic centimetres of alkali used, in this case, represents the percentage of casein in the milk.

The method consists, then, in taking a 16.3 c.c. sample of the milk and placing it in the test cup. The existing acid of the milk is now neutralized by adding the alkali exactly as in the case of the "acid test," after having first added the indicator. We use 1 c.c. of the indicator (1: 500). We also advise bringing the color to a good deep pink. We next add an excess of commercial formaldehyde solution, which has been rendered neutral with alkali, using, of course, a few drops of indicator to show the neutral point. We advise using about 2 c.c. of the formaldehyde solution. The pink color of the milk now disappears at once since the acid of the casein has been set free, or rather, since the basic function of the casein has been fixed or bound. We now add the alkali again until we get the same shade of color as we had before we added the formaldehyde. The amount of alkali used in this last titration represents the percentage of casein in the milk. This is obtained, of course, by subtracting the first reading on the burette from the second reading. To eliminate the trouble of this subtraction, I have devised a new form of acidimeter, which you now see, which is a so-called automatic zero point acidimeter, by means of which the alkali is brought to the zero point in a moment after the first titration, and thus the trouble of subtraction is eliminated. This acidimeter will be placed on the market in a short time, when it will be available, not only as a casein test, but as a general acidimeter for the acid test.

The time required for the complete test of course varies with the skill of the operator, but should not occupy more than two minutes. Further, when a large number of tests are made consecutively, the time may be cut down appreciably by taking a number of samples in succession, without laying down and taking up again the pipette between each sample.

The test makes use of only those substances in common use in cheese factories, namely, the standard alkali, the ordinary indicator, and the pipette and acidimeter, with the exception of the formaldehyde, which is a very cheap substance and readily obtained at any drug store.

It is, further, no more difficult to carry out than the ordinary acid test, and therefore can be operated by any cheesemaker.

At the time the details of the test were worked out some months ago, no preservative was in common use which permitted its use with composite preserved samples. During the last few weeks I have been carrying on a series of experiments to discover a preservative which will preserve milk for a month, and will not interfere with either the test for fat, or the casein test. As yet the experiments are not complete, but I have hopes of obtaining satisfactory results in the near future.

MR. BARR: Does the temperature make any difference to the test?

PROF. WALKER: No, we will get exactly the same result one day as another and the test does not vary with conditions. It will give you the same result whether it is 40 or 50 degrees or 90 degrees; it is a chemical test.

SENATOR DERBYSHIRE: Do you know anything about Mr. McLaren's arrangement?

PROF. WALKER: No.

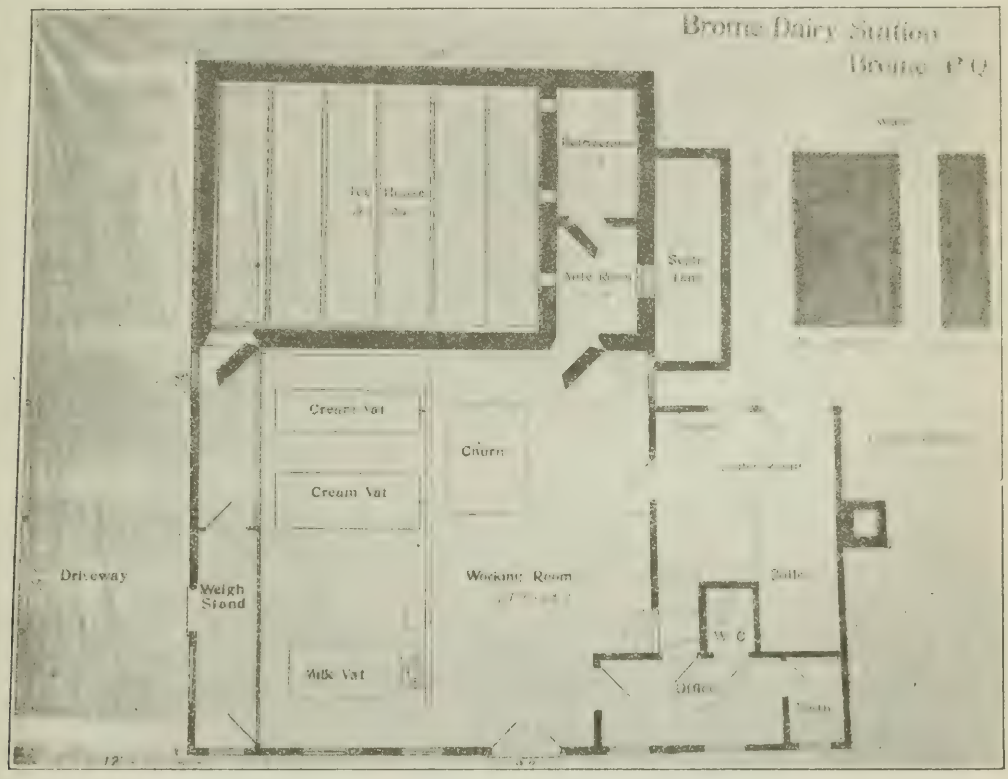
SENATOR DERBYSHIRE: He can put a bottle of milk in his pocket and keep it there for two years and then drink it by the wayside. There is no trouble about it; I have seen the milk. He pulled a bottle out of his pocket in Winnipeg and gave me a drink.

PROF. WALKER: There is very little literature on milk preservatives. I hope to be able to make a preservative that will keep milk for a month.

THE NEW EXPERIMENTAL DAIRY STATIONS.

G. H. Barr, Chief of the Dairy Division, Ottawa.

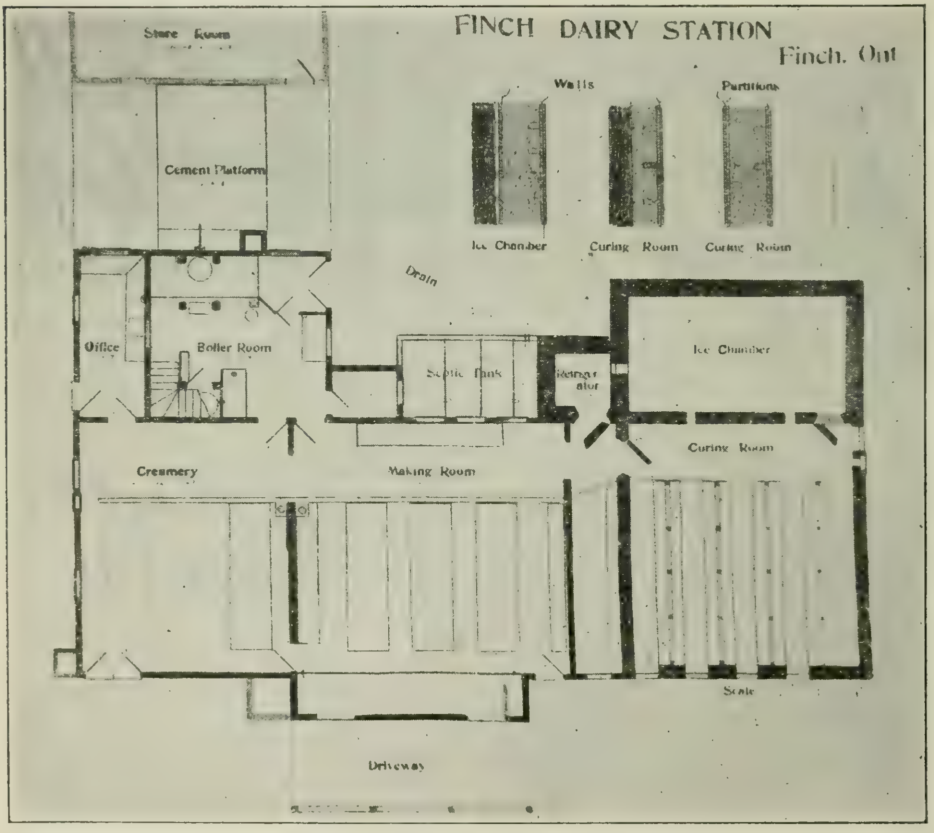
In Eastern Ontario there are many sections in which the factories are small and poorly equipped, and the dairy division spent some time looking over the situation before selecting a location to build a dairy station. At Finch the conditions seemed favorable for several reasons. The railway connections were convenient to Ottawa; the district was a fairly good dairy section and could be improved very greatly; the cheese in the district were not noted for their fine quality and there might be an opportunity to assist in improving this condition; there were two small factories close to the village which were cutting each other's throats, to use a common expression. We purchased these and by uniting them in our dairy station, we feel we have done the right thing, and we hope that we will be able to assist in overcoming some of the other weak features in the district. Although we have only been located at Finch one season, I know that there are already some improvements in the district which I do not believe would have taken place had we not come there.



This subject is probably not as interesting as many others that have been discussed at this Convention, but we may grow crops, keep cows, feed them well and take care of the milk and cream in the very best way at the farm, yet to get the very best returns, we must have a proper place in which to manufacture that milk and cream into cheese and butter.

In erecting these dairy stations, the dairy division had two objects in view: first, we wished to secure a suitable place in which to carry on experimental work and, second, the buildings would serve as models for those wishing to build new cheese factories or creameries. There is nothing elaborate about these buildings. They are simply good substantial buildings in which the work can be done conveniently and well. The same may be said about the equipment.

I will try briefly to point out a few features about these dairy stations which I think may interest you. One of the worst features of the cheese business in Eastern Ontario is the small and poorly equipped factories. We made an effort to overcome this at Finch by purchasing two small factories located near the village and uniting them in our dairy station, and in this new building we hope to give the patrons better service than they ever had before.



The factory is built of hollow cement blocks. We used this material, because we thought it the cheapest in that section. Personally, I like either a brick or frame building better than one built of cement blocks; still the Finch building looks very well. The foundation of the building is concrete, four feet deep, eighteen inches wide at the bottom and tapers to nine inches wide at the top with the slant on the outside. This makes a splendid foundation and I would much rather build it in that way than have it the same width all the way down. The specifications for the concrete mixture were as follows:

The concrete for the foundations shall be composed of one part approved Canadian Portland cement and four parts clean, sharp sand mixed dry, then moistened with a minimum quantity of water and incorporated with four parts of coarse gravel or 2-inch broken stone.

The cement blocks are rock faced, two feet long, eight inches wide and nine inches high.

In the making room, creamery, office and engine room, there is no inside finish on the walls. We intend to paint or whiten the cement blocks.

The specifications for insulating the ice chamber, curing room and refrigerator were as follows:

Outside Walls of Ice Chamber and Refrigerator.—Erect against cement block 2 x 1 inch furring strips at 2 feet centres and cover with one course of 7-8 inch T & G sheathing. Over this lay two ply of damp proof paper to be held in place with thin strips or lath. Erect 2 x 6 studs at 2 feet centres placed to bring the inside edge one foot from surface of sheathing already erected leaving a space of 12 inches to be filled with shavings. Cover with one course of 7-8 inch T & G sheating, *two ply of damp proof paper* and finish with 7-8 inch T & G *spruce sheathing* free from shakes, large or loose knots. Space between studs to be filled with dry planer shavings.

Outside Walls of Curing Room.—Lay over inside surface of cement blocks, two ply of damp proof paper held in place by thin strips or lath. Set up 2 x 4 inch studs, 24 inch centres, with inside edge 8 inches from inside surface of wall, so as to leave a space of 8 inches between wall and sheathing. Lay one course of 7-8 inch T & G sheathing, *two ply of sulphite building paper* and finish with 7-8 inch T & G *spruce sheathing,* free from shakes, large or loose knots. Space between wall and sheathing to be filled with dry planer shavings.

Partition between Ice Chamber and Curing Room.—Erect 2 x 4 inch staggered studding at 24 inch centres, leaving a space of 12 inches between the outside face of each row of studs. (See detail.) On the side next the ice chamber, lay one course of ⅞ inch T & G sheathing, 2 *ply of damp proof paper* ("Neponset" or "Hercules") and finish with one course of ⅞ T & G *spruce sheathing* free from shakes or large or loose knots.

The side next the curing room to be finished in a like manner, except that sulphite building paper may be substituted for damp proof paper.

Partition between Curing Room and Drying Room.—To be erected in the same manner as partition between curing room and ice chamber, except that sulphite building paper may be used on both sides. In every case, two layers of paper well lapped must be used.

Ceiling of Ice Chamber.—Lay 2 x 10 inch joists on top of walls at 30 inch centres. On the under side, cover with one course of ⅞ inch T & G sheathing, *two ply of damp proof paper* and finish with ⅞ inch T & G *spruce sheathing.* The space between the joists to be filled with dry planer shavings. Lay one course of ⅞ inch T & G sheathing on top of joists. Make a hatch 4 feet x 3 feet in ceiling of ice chamber where directed and fit same with double doors.

Ceiling of Refrigerator.—Lay 2 x 8 inch joists on tip of wall at 30 inch centres. On under side cover with one course of ⅞ inch T & G sheathing, *two ply of sulphite paper* and finish with ⅞ inch T & G *spruce sheathing,* the space between the joists to be filled with planer mill shavings to a depth of 14 inches.

Ceiling of Curing Room.—Place 2 x 8 inch joists 24 inch centres with lower edge 9 feet in the clear above floor. Provide and erect the necessary beams to carry the joists. (*Note.*—The Department will provide the necessary posts which will be utilized also to carry the cheese shelves.) The contractor will erect the posts provided. Cover under side of joists with one course of ⅞ inch T & G spruce sheathing. On the upper side of this sheathing, lay one ply of sulphite building paper between joists and attached thereto with strips of wood. Spaces between joists to be filled with shavings. Cover joists on upper side with one course of ⅞ inch T & G sheathing. Make a hatch 3 feet square in ceiling of curing room where directed and fit same with bevelled door.

The specifications for the floors were as follows:

MAKING ROOM FLOORS.—Provide and lay over the floor area, to a depth of 8 inches with gravel, broken stone or clinkers, well rammed or rolled, and afterwards moistened to prevent absorption of water in the concrete when laid; on this lay 4 inches of Portland cement concrete, to be composed of one part approved Canadian Portland cement, four parts clean, sharp sand, mixed dry, then moistened with a minimum quantity of water, and incorporated with four parts of coarse gravel or 2-inch broken stone. Finish the top with 1-inch of cement composed of one part approved Canadian Portland cement, two parts clean, sharp sand, and one part crushed stone, or fine gravel, trowelled perfectly level and left smooth and even.

All floors to be sloped or graded with gutters and drains as shown on plan or as directed.

ICE CHAMBER FLOOR.—Excavate the area of the ice chamber to a depth of 16 inches below the top of foundation and lay a 3-inch field tile level with the ground all around the foundation wall. On top of this, lay a concrete block 4 inches thick and 12 inches wide to support studding for insulation. Inside of this concrete block, grade the ground with a slope of 2 inches to the end wall; lay a 3-inch field tile all around the edge of the cement block mentioned above and 7 rows of the same sized tile across the room. All the tile must be sunk level with the ground and connected with a 3-inch glazed tile, leading through the foundation wall to the drainage system of the factory. Provide a trap in the glazed tile outside of building. Then lay 8 inches coal cinders and 10 inches mill shavings. Cover the mill shavings with rough inch lumber, leaving the boards slightly apart. On top of the lumber, lay 2 x 4 inch scantling at 24 inch centres.

REFRIGERATOR FLOOR.—Excavate area of refrigerator to a depth of 15 inches below the top of the foundation and lay gravel and concrete the same as in curing room floor. On top of concrete, lay one course of 3-inch impregnated cork board. Finish the top with 1 inch of Portland cement, same as other floors.

The cheesemaking room as you see is in the centre of the building and the creamery at the end. We have one of the cheese vats in the creamery which is quite convenient for cheesemaking and is also used as a milk receiving vat when making butter in winter. By closing the sliding door in the partition between the creamery and cheese room, we have a compact, easily heated arrangement for winter buttermaking. The wash sink with hot and cold water and steam connections is in the engine room and is connected with the septic tank.

In the gutter at the partition between the creamery and cheese room are two Bell traps; one is connected with the septic tank and the other with the drain. The water can be directed into either place by placing a rubber sheet over one of the traps.

The whey discharges from the vats into the gutter and by placing rubber sheets over both traps, it is kept in the gutter and is elevated by either or both a rotary pump and ejector to a steel tank above the engine room where it is pasteurized. The whey is delivered to the patrons cans through an Eclipse Automatic

Skimmilk Weigher. The patrons' waggons while loading the whey stand on a cement platform from which there is a drain to carry any whey that may be spilt to the septic tank. There is a connection inside from the whey tank to the septic tank, so that it can be cleaned out by simply opening a valve. Upstairs over the engine room, we have the whey tank, skim-milk tank, cold water tank and work shop.

The office and testing room is very convenient. The bath room and water closet are something which is in very few factories. The shower bath should be in every factory and creamery. We have this one fitted with both hot and cold water.

The septic tank is 14 x 8 feet and 6 feet deep. The outlets from the factory only allow about 4½ feet of water in the tank. The outlet from the tank connects with the village drain. We are not quite satisfied with our sewerage system and I think we will do some experimental work on this subject next summer.

I could wish that all our factories were built something like this one and also that their location was as desirable. There is little to induce our bright young Canadians to take up dairying as a profession when they have to live in out of the way places and often have very poor accommodation provided. Good and sanitary cheese factories and creameries with comfortable and attractive surroundings for the cheese and butter makers will do much to keep our best men in the business and also induce bright young men to enter it, and our patrons ought to realize that good buildings, first class equipment and competent makers cannot be secured and maintained unless a suitable commission is paid for manufacturing.

Prof. Dean: What did that building cost?

Mr. Barr: The contract price was $6,075.00 which was the lowest tender. There were extras amounting to $281, making a total cost of $6,356.00. This amount does not include the cost of drainage and drilling a well.

Prof. Dean: With machinery, it will cost you about $10,000?

Mr. Barr: Yes, a little over that amount.

I would like to call your attention for a few minutes to the plan of our creamery at Brome, Que. It is a frame building on a concrete foundation with concrete floors. The contract price for this building was $4,000 including drainage. When completed it cost $4,122.00.

The specifications for foundations and floors are practically the same as at Finch, and for the walls and ceilings as follows:—

All walls to be 11 feet high from floor level to top of plate. Lay a sill of 2 x 4 inch scantling doubled at corners. Erect 2 x 4 inch studding at 24 inch centres with 4 x 4 inch corner posts. Lay a plate of two pieces of 2 x 4 inch scantling with broken joints.

Outside Sheathing.—Cover studding with one course of ⅞ inch spruce lumber dressed on one side. Cover this with one ply of sulphite building paper and one ply of "Neponset" or "Hercules" damp proof paper (damp proof on the outside). All paper to be well lapped. Finish on the outside with best quality clapboards laid not more than three inches to the weather. On that portion of the wall adjoining elevated platform, clapboards only to be laid. Corners of building to be finished with a casing 5 inches wide.

Inside Sheathing of Working Room, etc.—On the inside of studding in the working room, bath room, office and boiler room, lay one ply of sulphite building paper over studs, then one ply of "Neponset" or "Hercules" damp proof paper and finish with ⅞ inch T & G spruce "v" jointed sheathing. On the first 3½ feet of the wall from the foundation, the sheathing to be erected perpendicular with a narrow ledge or moulding along top. The rest of the sheathing to be erected horizontally.

Filling for Walls.—Space between studs in outside walls to be filled with dry planing mill shavings.

Inside Sheathing of Ice Chamber, Refrigerator and Ante-room.—Erect a second row of 2 x 4 inch studding ("staggered") at 24 inch centres so placed as to bring the inside sheathing 12 inches from the outside sheathing, thus providing a space of 12 inches to be filled with shavings. Lay one course ⅞ inch T & G *spruce* sheathing, 2 ply damp proof paper ("Neponset" or "Hercules") and finish with one ply ⅞ inch T & G *spruce* sheathing, free from shakes, large or loose knots. Space between studs to be filled with dry planing mill shavings.

Partitions.

Ice Chamber, Refrigerator and Ante-room.—The partitions adjoining the ice chamber, ante-room and refrigerator to be constructed as follows:

Erect 2 x 4 inch "staggered" studding at 24 inch centres, so as to provide a space of 12 inches between the inside and outside sheathing.

Cover the outside of each row of studding with one course of ⅞ T & G spruce sheathing, two ply of "Neponset" or "Hercules" damp proof building paper and finish with one course of T & G spruce sheathing. The finish next working room to be of "v" joint and erected in the same manner as for outside walls of working room. (First 3 feet 6 inches perpendicular, balance horizontal.)

Boiler Room, Office, Bath Room, etc.—The partitions dividing working room, boiler room, office and bath room to be constructed of 2 x 4 inch studs covered on both sides with "v" joint ⅞ inch T & G spruce sheathing, laid in same manner as specified for inside of walls of working room, namely, 3 feet 6 inches perpendicular and rest horizontal.

Partition on Receiving Platform.—Erect from edge of receiving platform to ceiling as shown on plan, a partition to consist of a frame work of 2 x 3 inch dressed studding with one course of "v" joint T & G spruce sheathing, finished on both sides and set in centre of studding with quarter round moulding on all corners. Upper half of this partition to be glazed and fitted with sliding sash. Make where directed two openings in partition each 3 feet x 1 foot with sliding covers.

Ceilings.

Ice Chamber.—Lay 2 x 10 inch joists on top of walls at 30 inch centres. On the under side, cover with one course of ⅞ inch T & G spruce sheathing, two ply of damp proof paper and finish with ⅞ inch T & G spruce sheathing. The space between the joists to be filled with dry planer shavings. Lay one course of ⅞ inch T & G sheathing on top of joists, sheating to extend over refrigerator and ante-room. Make a hatch 4 feet x 3 feet in ceiling of ice chamber where directed and fit same with double doors.

Refrigerator and Ante-room.—Fix 2 x 10 inch joists at 30 inch centres so as to make a ceiling 7 feet clear from floor. On the under side, cover with one course of ⅞ inch T & G spruce sheathing, two ply of damp proof paper and finish with ⅞ inch T & G spruce sheathing. The space between the joists to be filled with dry planer shavings. Lay one course of ⅞ inch T & G sheathing on top of joists.

Working Room, Office, Bath Room, Boiler Room, and Roof Over Weighing Stand.—Lay over walls and partition 2 x 8 inch joists at 24 inch centres. On the under side of joists, lay one course of ½ inch T & G spruce sheathing. Finish corners with moulding. On the upper side of this sheathing, lay between joists, one ply of sulphite building paper attached to joists with strips of wood. Fill space between joists with 4 inches of dry planer shavings.

Cover the upper side of joists over working room, receiving platform, office, bath room and boiler room with ⅞ inch T & G sheathing.

In ceiling of working room, make a hatch where directed 3 feet square with door on hinges to fit.

RUN BEAM AND POST.—Provide and erect the necessary truss or run beam to support the ceiling of working room. If a run beam is used, there must be only one post to be of 3 inch galvanized iron steam pipe with suitable iron flanges at top and bottom.

Make hatch 2 feet x 2 feet in ceiling of boiler room with sliding cover.

The ceiling of working room to have one row of "bridging" in each span.

We find this building very easy to keep warm in the winter time.

We have a larger ice chamber here than is usually put in a creamery. The reason is that we use the ice from this room for cooling the cream, thus doing away with sawdust or packing of any kind on the ice. We will take the ice out through this door at the elevated platform.

PROF. DEAN: Does that door open directly into the ice chamber?

MR. BARR: Yes. It may effect the ice to some extent, but I think for the short time the door will be open in getting out ice the loss will be very little.

PROF. DEAN: It is a good plan if you can work it out.

A MEMBER: How high is the ceiling in the ice house?

MR. BARR: It is the same height as in the other rooms, eleven feet. The ice is dropped through a trap door in the ceiling.

The skim milk tank is above the engine room and the skim milk is delivered to the patrons through the same style of a weigher as we have at Finch. These machines are giving us good satisfaction, but they need to be looked after very carefully every day.

I like the glass partition on the elevated platform very much. It keeps the creamery nice and comfortable when weighing in the milk in winter time and will prevent the flies from getting in during the summer.

The plans and specifications of these buildings may be had by writing to the Dairy and Cold Storage Commissioner, Ottawa, and the Dairy Division will be only too glad to furnish all the information available regarding the building of new cheese factories and creameries, or repairing old ones.

I would also like to say that we will be pleased to have suggestions from anybody regarding experimental work. We will be glad to give you what assistance we can in over-coming any of your difficulties.

Q.—What percentage of fall do you have on the making room floor?

A.—One inch to nine feet, which is probably not quite enough.

Let me say in conclusion that I believe you will all agree that environment has something to do with man's character and his life. The place in which a man lives and the people he associates with make a considerable impression on his life, and I would like to ask you if you are sure that the surroundings and places where our cheese and butter is made would have a tendency to make the cheese and buttermakers better men. I do not believe they would, and I believe one of the worst problems confronting our dairy industry in Canada to-day is the securing of competent cheese and buttermakers and managers for our cheese factories and creameries.

I believe the surroundings have a great deal to do with the class of men who go into the business, and that is one of the things that I would like you to think about. Is there very much chance for developing the mechanical ability of a man in our cheese factories, when probably the most complicated piece of machinery he has with which to repair an ejector is an axe or a hammer with one claw broken? Or is there any inducement for a bright, ambitious young man to enter the dairy industry when he knows he may have to live in an isolated place with scarcely the necessaries to take care of a family right, and very often they, too, live in an unsanitary and bad smelling neighborhood? Who is to blame for the conditions that we have to-day? It is very easy to suggest a remedy, but it is not so easy to work it out. To my mind, there are two parties to-day who are responsible for the conditions that we find in many of our cheese factories and creameries: The proprietors and owners of cheese factories are to blame because of the foolish competitions that exist between them; and the patrons have a craving apparently for a factory at every corner and they want to have the making done cheaply regardless of good work. The remedy to my mind is that the proprietors and cheesemakers and owners of factories should spend more time in their own business trying to increase the production of milk in their own district, and less time among the patrons of their opposition.

A Member: In case you have any surplus whey, can you dispose of it in the septic tank?

A.—Yes. All we have to do is to turn a valve and it runs out, and any wash from that tank comes down to the septic tank.

Q.—What is the septic tank made of?

A.—Cement.

Q.—Do you find that the septic tank will take care of any quantity of whey?

A.—I do not know what the septic tank will do. We have not had it long enough to know, but I know that sometimes we have to run out a good deal of whey and I think that is probably the reason that we have trouble with a smell from our drainage.

Q.—It takes considerably more time to put the matter through the septic tank if you run whey into it?

A.—Yes, that is one of the things we want to make provision for, and if that septic tank won't take care of that factory work, we want to get something that will. I think you should have your whey tanks so that you can clean them every day. The whey from this factory goes into the patrons' cans just as clean as it comes out of the vat and just as sweet. It is pasteurized and we are very much pleased with it, and if that septic tank won't take care of that arrangement we will have to find something that will, no matter what it costs us.

Q.—What is the probable cost of a creamery like that?

A.—The contract price for the building including the sewer which was about 300 feet, was $4,000. We changed the foundations a little and the building cost us exactly $3,960.80 without any extras. The extras in fitting up the plant, with the time bonus, which we give on our contract, of $10 a day if they get through before the time specified, amounted to $391, making a total cost of $4,352. The time bonus was $230.

Q.—At what temperature do you keep the refrigerator?

A.—We expect it will stand down to 40 at any time; it should be lower than that if kept properly closed up. We think it is well constructed and with the corkboard lining in the floor it ought to be a success.

Q.—Do you think that ice house sufficient to run an ordinary creamery of 80 or 90 tons?

A.—We consider we will be able to take care of 60 or 70 tons of butter.

Q.—You have not provided a store room for the butter?

A.—No, we do not believe in that. I think it is a mistake for a creamery to hold butter. The best thing to do with butter is to get it out and get it eaten up. I think it is a mistake to speculate on the patrons' proceeds.

Q.—You might find it necessary to hold it for a week.

A.—We can hold it for more than a week. I think we can hold two or three weeks' make. It is 9 x 6 x 7 feet high.

Q.—Don't you think the temperature should be under 40?

A.—Yes, I think you could keep it down to 38.

Q.—Do you think it would carry safely for a week at 40?

A.—I think a great many creameries carry it for a week at a higher temperature than that. I think for ordinary creamery work 38 to 40 would be all right for a week or ten days.

Q.—Is that door leading into the ice chamber insulated?

A.—Yes, that door is a foot thick.

Q.—The ice is put in through that door?

A.—No, it has to go up over the ceiling and is dropped in. We have a door in the ceiling for the purpose of dropping down the ice.

CASEIN AND FAT CONTENTS OF MILK AT ONTARIO CHEESERIES FOR THE SEASONS 1911 AND 1912.

H. H. Dean, O. A. College, Guelph, Ont.

I was pleasantly surprised on receiving a copy of the programme for the Eastern Ontario Dairymen's Meeting, to notice that three addresses on your excellent "bill of fare" related to the Casein of Milk. For some twenty-two years the *fat* of milk has monopolised the attention of cheesemakers, but now casein seems to be "coming to its own." The only way to command attention for a deserving subject, about which the public is inclined to be indifferent, is to "keep hammering away at it," until at last people stop and ask, "What's all this noise about it, anyway?" Attention is the first step in the giving of instruction. Until a teacher can command attention, he is powerless to interest and instruct his classes. We have reached the first stage in this important question. "Attention" is called three times on this programme to milk casein. It will now be possible to proceed with the second step, instruction. After these, come conviction, then action. Attention, instruction, conviction, action—this is the logical order in education and improvement of the people in any and every country.

There is another point to which I beg leave to call attention, viz., the great need there is of knowing more about the composition of milk and dairy products in Canada. If I may be allowed to

> **"Dip into the future, far as human eye can see—**
> **See the vision of the (Dairy) world and all the wonders yet to be,"**

I would suggest that men and money be directed more largely than has been the case in the past towards gaining fuller information as to the composition of milk and the products of the dairy. We know practically nothing regarding this question, which is the basis of intelligent improvement in the future. From the small amount of work we have done during the past two seasons, we are led to believe, there is a marked variation in the composition of milk as delivered at Ontario cheese factories, so far as casein and fat are concerned, to which we shall refer later. What about the other constituents of milk? Who knows how much albumen, ash, sugar and water there is in Ontario milk, and what part these play in the manufacture of cheese and other dairy products? Verily, we are groping in the dark.

CASEIN AND FAT MUST BOTH BE CONSIDERED.

For a long time, scientists, as well as practical men who had studied the question, thought it was necessary to consider milk-fat only, when discussing the relation of milk constituents to cheese manufacture. The danger now is, of considering casein only. After a careful study of this question during the past five years, I have come to the conclusion that it is practically impossible to consider either one of these *alone,* in its relation to cheesemaking. It is possible that other milk constituents may also play an important part, but it is certain that these two, casein and fat, are the principal milk constituents concerned in the making of Canadian Cheddar cheese. While we have been taught that each increase of a fraction of a per cent. of fat in the milk, means an increase of so much in the yield of cheese (some have been bold enough to say an increase also in the food value of the cheese), and now we are told that there is a relation between casein content and cheese, I make bold to say that the foregoing are impossibilities, strictly speaking. These two, casein and milk-fat, must be considered together. It is a case similar to that of "Jack and Jill went up the hill." How could Jack and Jill "go up the hill," unless both Jack and Jill were present and went up the hill together? Without casein and milk-fat it is impossible to make good Canadian Cheddar cheese. So far as our work has gone, it indicates that there is no absolutely definite relation of casein to milk-fat required in normal milk, in order to give the best results in quality of cheese, although future investigations may cause a modification of this statement. In this connection, allow me to quote from a letter, published recently in an American Dairy Journal, written by a well-known Montreal cheese merchant, who has given special attention to this phase of the question and which bears on this point:

"I believe I have the fullest opportunity of judging, and I contend that so long as the cheese are made from the whole milk, it makes not the slightest difference in the value of the cheese whether the milk contains, say, 3½ per cent. of fat or 4 per cent. of fat. . . I may also say further that we have had during the past year the cheese of a factory in the Province of Ontario where the milk was divided into two vats, one containing the milk of Holstein cattle and the other containing the milk of the patrons who did not have Holstein cattle. The difference in quality of milk contained in the vats varied, of course; but averaged something like .4 per cent. difference, and these cheese have been shown to experts continuously throughout the season without in any case having the most expert judge decide that the cheese from the Holstein milk was in any way inferior to that made from the other milk; in fact frequently the decision was that the cheese made from the Holstein milk was the better of the two."

CASEIN AND FAT INVESTIGATIONS AT O.A.C. DURING FIVE YEARS.

Allow me to refer very briefly to the work done at the O. A. College, Guelph, on this question. (Details may be found in the College Reports for the years 1908 to 1912).

The tests for percentages of casein and fat of the vats of milk used in cheesemaking during the five years 1908 to 1912 inclusive, averaged as follows:

	Casein	Fat
1908	2.39	3.67
1909	2.50	3.60
1910	2.46	3.60
1911	2.30	3.58
1912	2.17	3.56

The tendency is towards lower average percentages of casein and fat in the milk that has been delivered to us during the past five seasons from practically the same patrons each year. By months, we find the lowest average percentages for casein and fat, usually in July and August and the highest in September and October. The latter probably due to advanced lactation among the cows.

During these five years we aimed to make one experiment each week during the cheese season of May to October, by dividing the milk of our patrons into two lots. Those having milk testing comparatively high in casein and fat were put in one vat, and those having milk with lower casein and fat content were put in another vat. The results of these five years' tests, consisting of 79 experiments in which over 82,000 lbs. milk were used, is as follows:

A lots—low casein and fat

Year	Av. % fat in milk	Av. % casein in milk	Av. lbs. cheese per 1000 lbs. milk	Av. lbs. cheese per—		Av. % moisture in cheese one month old	Av. score max. 100
				Lb. fat in milk	Lb. casein		
1908	3.51	2.32	88.40	2.51	3.85	35.40	91.90
1909	3.53	2.34	90.32	2.56	3.86	35.04	90.86
1910	3.53	2.44	92.70	2.62	3.79	35.30	90.13
1911	3.47	2.23	90.91	2.62	4.07	35.29	91.25
1912	3.42	2.09	90.70	2.64	4.33	34.50	92.09
Av. 5 yrs.	3.49	2.28	90.60	2.59	3.98	34.90	91.24
			B lots—high casein and fat				
1908	3.75	2.46	94.50	2.52	3.84	34.4	91.70
1909	3.70	2.49	93.90	2.56	3.77	34.8	91.03
1910	3.86	2.65	97.34	2.50	3.68	35.1	91.18
1911	3.71	2.43	97.31	2.60	3.96	35.3	92.51
1912	3.84	2.36	96.23	2,50	4.02	34.5	92.97
Av. 5 yrs.	3.77	2.48	95.85	2.53	3.85	34.8	91.87

These results show an average increase of 5¼ lbs. cheese per 1,000 lbs. milk, where the average fat and casein contents of the milk were increased .28 and .2, respectively. We thus see that a very slight increase in the percentages of fat and casein in the milk from which cheese are made has quite a marked effect on the yield of cheese. The average for the five years' experiments is 10½ lbs. more cheese per ton of milk, worth at least one dollar to the patron or producer of such milk. The average yields of cheese, per pound of fat and per pound of casein in the milks are slightly higher from the lower fat and casein lots. The average percentages of moisture in the cheese, one month old, were 34.9 and 34.8—very little difference. The fat in the cheese was determined for the years 1911 and 1912. The cheese from the lower casein-fat lots averaged 35.58, while those from the higher casein-fat lots averaged 36.3 per cent. fat. The average scores of the cheese were 91.24 and 91.87 out of 100 respectively, for the two—low and high casein-fat lots. The average pounds of cheese made per pound of casein-fat in the milk from the lower testing lots was, 1.57; from the higher testing lots, 1.53.

FACTORY TESTS.

Leaving the work done at the college on this question, we shall next consider the factory work. Early in the season of 1911 we got into communication with the two Chief Dairy Instructors of the Province of Ontario, Messrs. Publow and Herns, and asked them to suggest factories in their districts where casein and fat tests might be conducted for the season. We then arranged with the owners or makers in these factories to allow the work to be done. The actual tests were made by two undergraduates in dairying, Messrs. Cherry (1911) and Brown (1912). The following extracts from the directions furnished Mr. Brown will give an idea of the nature of the work it was proposed to do:

"Be courteous and obliging to cheesemakers, factory owners, assistants and patrons, in order to secure their sympathy and co-operation."

"Be careful and accurate in all the work, so as to impress all those who observe that the work is being done in the best manner possible."

"Remain four to five days at each factory. Take samples from about forty-eight patrons at each factory, testing each lot of milk for casein with Hart and Walker tests, so far as possible; and also for fat with the Babcock test. (It is expected that factory owners will allow the use of Babcock test and Acidimeter.)"

"Record carefully the tests at each factory in the book provided for the purpose."

The men in charge were requested to also make a composite test of about ten patron's milks at each factory for fat and casein, to test as many vats of milk as possible, and to secure the weight of cheese made from these vats wherever practicable.

The following is the list of factories visited during each of the two years:

WESTERN ONTARIO.

1911: Kerwood, North Oxford (Ingersoll), Mapleton, Springford, Caledonia, Dominion (Attwood).

1912: Tavistock, Burgessville, Banner, Dunboyne, Bismarck, Dominion.

EASTERN ONTARIO.

1911: Central Smith (Peterboro), Mountain View, Aberdeen, Navan.

1912: Central Smith, Mountain View, Lansdowne, Caintown, Smith's Falls, Norwood.

Not to burden you with too many figures we shall give the highest, lowest and average percentages of casein and fat in the milk of these two groups, for the two years which are as follows:

	Per Cent Casein.			Per Cent Fat.		
	Highest.	Lowest.	Average.	Highest.	Lowest.	Average.
WEST ONTARIO.						
1911	2.90	1.6	2.26	4.5	2.7	3.42
1912	3.1	1.6	2.21	5.8	2.1	3.54
EAST ONTARIO.						
1911	2.7	1.6	2.35	4.3	2.6	3.50
1912	2.6	1.6	2.08	5.3	2.7	3.50
Average two seasons	....	....	2.22	....	....	3.49

The average percentage of casein in Western Ontario milks, as determined at the factories visited, was 2.23; for Eastern Ontario factories, 2.21; and for all the factories visited in the two years, 2.22. The milk-fat averages are, 3.48 for the factories visited in Western Ontario and 3.50 for Eastern Ontario, averaging 3.49 in both for the two years.

The striking point about these results are the comparatively wide variations in the percentages of casein and fat found in the different patron's milk at these factories, and the closeness of the averages for both years and in both groups.

These results are based on tests of nearly 500 patrons milk in each of the years 1911 and 1912 and represent about 8,000 tests in 1911 and 7,000 in 1912—a total of about 15,000 tests for casein and 15,000 for fat in the two years, a total of 30,000 tests altogether.

In order to obtain some data on the relation of casein and fat in vats of milk at these factories, and the actual yield of cheese, Mr. Brown, in 1912, made a number of tests and got the weight of green cheese as often as possible. It was found difficult to obtain the weights of cheese exactly, as some curd would be left over from a vat or vats, but fourteen tests were fairly satisfactory. The weights of milk in the vats of these tests varied from about 4,000 lbs. to 22,500 lbs. The percentages of fat in the milk of these vats ranged from 3.4 to 3.7, the percentages of casein from 1.9 to 2.4. The weights of green cheese in one lot varied from 345½ lbs. to 2,024¾ lbs. The range in pounds of cheese made per pound of fat casein, was 1.44 to 1.67 and averaged 1.59. This figure is a little higher than that got at the O. A. C., where the average was 1.55, but the O. A. C. results are based on weights of cheese one month old, whereas the foregoing factory average is based on weights of green cheese and we should except a higher number in that case.

Summing up the two season's work, testing milk for casein and fat at cheese factories in both Eastern and Western Ontario, we come to the conclusion that there is quite a marked variation in the casein-fat content of Ontario cheese factory milks, which fact points to the importance of paying for milk at cheeseries according to its cheese making value, which value is largely determined by the casein-fat content of the milk. Until a practicable casein-fat test is evolved, we may test for milk-fat and casein separately by the Babcock and Hart or Walker methods, or adopt the plan of "Fat plus 2," which is near enough for all practical purposes, with normal milk.

A COMPARISON OF THE DIFFERENT METHODS OF DIVIDING THE PROCEEDS FOR MILK AT CHEESE FACTORIES.

L. A. Zufelt, Superintendent, Eastern Dairy School, Kingston.

Owing to the confusion and uncertainty which prevails in the mind of the average cheese factory patron in regard to the proper method of paying for milk, due chiefly to the opposing views held by our leading dairy authorities, it was deemed advisable to collect further evidence which would have a practical bearing on this question and enable us to judge more fully the merits of the different methods so far advocated.

Elm Grove Factory, 1912.

	June test.		Oct. 1st test.		Value per Cwt. by the three methods for months of						Dif. per cwt. compared with "F + C" method.			
					June			Oct. 1st.						
No.	% Fat	% Casein	% Fat	% Casein	Fat	F+C	F+ 2	Fat	F+C	F+ 2	Fat	Fat + 2	Fat	Fat + 2
											cwts.	cwts.	cwts.	cwts.
1	3.2	2.23	3.8	2.5	96.0	97.2	96.0	119.3	116.5	119.5	1.2	1.2	2.8	3.0
2	3.3	2.33	4.0	2.9	99.0	100.8	97.9	125.6	127.6	123.6	1.8	2.9	2.0	4.0
3	3.2	2.31	....	......	96.0	98.6	96.0	......	......	......	2.6	2.6	......	......
4	3.2	2.34	4.0	2.7	96.0	99.1	96.0	125.6	123.9	123.6	3.1	3.1	1.7	.3
5	3.0	2.25	3.3	2.4	90.0	94.0	92.3	103.6	105.4	109.1	4.0	1.7	1.8	3.7
6	3.2	2.20	3.6	2.6	96.0	96.6	96.0	113.0	114.7	115.3	.6	.6	1.7	.6
7	3.2	2.40	4.0	2.6	96.0	100.2	96.0	125.6	122.1	123.6	4.2	4.2	3.5	1.5
8	3.2	2.03	3.7	2.6	96.0	93.6	96.0	116.1	116.5	117.4	2.4	2.4	.4	.9
9	3.2	2.20	3.5	2.6	96.0	96.6	96.0	109.9	112.8	113.3	.6	.6	2.9	.5
10	3.2	2.30	3.9	2.7	96.0	101.5	96.0	122.4	122.1	121.5	5.5	5.5	.3	.6
11	3.1	2.19	3.9	2.8	93.0	94.7	94.2	122.4	123.9	121.5	1.7	.5	1.5	2.4
12	3.4	2.22	3.5	2.4	102.0	100.6	99.7	109.9	109.1	113.3	1.4	.9	.8	4.2
13	2.9	1.89	3.5	2.5	87.0	85.7	90.5	109.9	111.0	113.3	1.3	4.8	1.1	2.3
14	3.1	1.99	3.8	2.7	93.0	91.1	94.2	119.3	120.2	119.5	1.9	3.1	.9	.7
15	3.5	1.88	3.9	2.8	105.0	96.3	101.6	122.4	123.9	121,5	4.2	5.3	1.5	2.4
16	3.1	1.89	3.8	2.7	93.0	89.3	94.2	119.3	120.2	119.5	6.3	5.1	.9	.7
17	3.3	2.08	3.8	2.8	99.0	96.3	97.9	119.3	122.1	119.5	2.7	1.6	2.8	2.6
18	3.3	2.09	4.3	3.0	99.0	98.1	97.9	135.0	135.0	129.7	.9	.2	.0	5.3
19	3.3	2.27	4.4	2.7	99.0	99.7	97.9	138.0	131.3	131.8	.7	1.8	6.7	.5
20	3.1	1.80	3.8	2.7	93.0	90.5	94.2	119.3	120.2	119.5	2.5	3.7	.9	.7
21	3.5	2.26	4.4	2.8	105.0	103.1	101.6	138.0	133.2	131.8	1.9	1.5	4.8	1.4
22	3.0	2.34	3.6	2.5	90.0	95.5	92.3	113.0	112.8	115.3	5.5	3.2	.2	2.5
23	3.1	2.00	3.6	2.7	93.0	91.3	94.2	113.0	116.5	115,3	1.7	2.9	3.5	1.2
24	3.3	2.43	....	......	99.0	102.5	97.9	......	......	......	3.5	4.6	......	....
Total Dif............											62.2	64.0	42.7	42.0
Average per cwt.....											2.60	2.67	1.9	1.9

Amount distributed for June....$23	07
Value per 100 lbs,...............	96.1
Amount distributed for Oct. 1st. 26	40
Value per 100 lbs............... 1	20

At the present time we have four methods of payment before the public, each with more or less of a following, viz.: "Pooling," "Fat," "Fat+2," and "Fat+Casein." All our authorities and the public generally are agreed that the "Pooling" method is the least accurate and that either of the other three are preferable, if we could only agree as to which of these we consider the best.

In order to be in a position to discuss intelligently the merits of these three methods I set myself the following tasks:

First: As the fat and casein are the chief constituents of milk made use of in the manufacture of cheese, theoretically then, the fat and casein content of milk is a fair measure of its cheese making properties; but, lacking the means to quickly and accurately determine the percentage of casein in milk covering the usual period of monthly tests, and as a method of calculating the casein content based on the percentage of fat has been advocated, we undertook to find out if there was any constant relation existing between the fat and the casein.

Second: Assuming for the sake of comparison that the fat and casein content of milk was a fair measure of its value, to find out which of the other two ("Fat" and "Fat+2" methods) was the more accurate.

Third: By manufacturing milks of varying fat and casein content into cheese to determine which of the three methods came nearest to the actual weight of cheese made.

SUDBURY FACTORY 1912.

	June test.		August test.		Value per Cwt. by the three methods for months of—						Dif. per cwt. compared with "F. + C." method.			
					June.			August.						
No.	% Fat.	% Casein	% Fat.	% Casein	Fat.	F.+ C.	F. + 2	Fat.	F.+ C.	F. + 2	Fat.	Fat + 2	Fat.	Fat. + 2
											cwts.	cwts.	cwts.	cwts.
1	3.1	2.53	3.3	2.35	111.6	114.4	110.6	122.0	121.4	122.0	2.8	3.8	.6	.6
2	3.0	2.65	3.1	2.17	108.0	114.8	108.5	114.7	113.3	117.3	6.8	6.3	1.4	4.0
3	3.3	2.86	3.4	2.28	118.8	125.2	115.0	125.8	123.1	124.2	6.4	10.2	2.7	1.1
4	3.0	2.68	3.2	2.55	108.0	115.5	108.5	118.4	123.6	119.6	7.5	7.0	5.2	4.0
5	3.1	2.08	3.4	2.40	111.6	105.3	110.6	125.8	124.7	124.2	6.3	5.3	1.1	.5
6	3.1	1.75	3.2	2.20	111.6	98.6	110.6	118.4	116.1	119.6	13.0	12.0	2.3	3.5
7	3.3	2.31	3.4	2.25	118.8	114.0	115.0	125.8	121.4	124.2	4.8	1.0	4.4	2.8
8	3.0	2.42	3.2	2.17	108.0	110.2	108.5	118.4	115.4	119.6	2.2	1.7	3.0	4.2
9	3.0	2.29	3.4	2.28	108.0	107.5	108.5	125.8	123.1	124.2	.5	1.0	2.7	1.1
10	3.1	2.50	3.3	2.46	111.6	113.8	110.6	122.0	123.8	122.0	2.2	3.2	1.8	1.8
11	2.6	1.94	3.0	2.23	93.6	92.3	99.8	111.0	113.4	115.0	1.3	6.5	2.4	1.6
12	3.0	2.00	3.0	1.95	108.0	101.7	108.5	111.0	106.4	115.0	6.3	6.8	4.6	8.6
13	3.2	2.37	3.6	2.50	115.2	113.2	112.8	133.2	131.2	129.0	2.0	.4	2.0	2.2
14	3.0	2.15	3.3	2.40	108.0	104.7	108.5	122.0	123.5	122.0	3.3	3.8	1.5	1.5
15	2.8	2.09	3.1	2.28	100.8	99.4	104.8	114.7	115.6	117.3	1.4	5.4	.9	1.7
16	3.0	2.22	3.5	2.54	108.0	106.1	108.5	129.5	129.8	126.5	1.9	2.4	.3	3.3
17	3.1	2.21	3.5	2.44	111.6	108.0	110.6	129.5	127.7	126.5	3.1	2.6	1.8	1.2
18	3.0	1.97	3.4	2.46	108.0	101.0	108.5	125.8	126.0	124.2	7.0	7.5	.2	1.8
19	2.9	2.32	3.3	2.56	104.4	106.1	106.3	122.0	126.0	122.0	1.7	.2	4.0	4.0
20	3.0	2.33	3.5	2.34	108.0	108.4	108.5	129.5	126.0	126.5	.4	.1	3.5	.5
21	3.0	2.54	3.2	2.41	108.0	112.6	108.5	118.4	120.6	119.6	4.6	4.1	2.2	1.0
22	2.9	2.43	3.2	2.29	104.4	108.4	106.3	118.4	118.0	119.6	4.0	2.1	.4	1.5
23	2.7	2.84	2.7	2.78	97.2	112.6	102.0	100.0	117.8	108.0	15.4	10.6	17.8	9.8
24	3.6	2.64	4.0	2.70	129.6	126.9	121.5	148.0	144.0	138.0	2.7	5.4	4.0	6.0
Total Dif.											107.6	109.4	70.8	68.4
Average Dif. per cwt.											4.48	4.56	2.95	2.87

Amount distributed for June....	$26 20
Value per 100 pounds	1 09
Amount distributed for August.	29 30
Value per 100 pounds	1 22

In the carrying out of this work, arrangements were made with the makers of "Sunbury" and "Elm Grove" cheese factories to save composite samples of the milk supplied by their patrons, which samples were subsequently tested for casein at the chemical laboratory at Queen's, and for fat at the dairy school.

The tables give the result of this work together with the comparative values of the individual milks estimated by the three methods under discussion:

In addition to the percentages of fat and casein, we also have here tabulated the difference per 100 lbs. between the "Fat" and "Fat+2" methods, as compared with the "Fat+Casein" method, for the various months for which tests were made.

These tests represent the percentage of fat and casein in the milk for the entire month.

In examining the tests for both factories it will be noticed, from the extreme variation of casein in milks having the same fat content, that no constant relation exists between the fat and casein in the milks of individual patrons, but on the contrary the casein shows a greater variation than does the fat.

A further examination of these tables will also indicate a partial answer to the second question which we undertook to solve, viz.: "Of the two methods of payment, "Fat" and "Fat+2," which is the more accurate?" A careful examination of the table of differences recorded in the last four columns reveals the fact that for Sunbury factory both methods are equal, and for the Elm Grove the "Fat" method is slightly nearer correct than the "Fat+2" method of payment.

It will also be observed that invariably the "Fat" method of payment favors slightly the milk having a high fat content, whilst on the other hand the "Fat+2" method gives the low testing milk a greater value than it really has. This is more fully brought out in the next table which represents a summary of all the tests made at the dairy school up to date.

AVERAGE PER CENT OF CASEIN IN MILK FROM 446 TESTS.

	% Fat.	% Casein.	Value per Cwt.			Difference as compared with F. + C.	
			Fat.	F. + C.	F. + 2	Fat.	F. + 2.
	3.0	2.2	105.0	106.8	111.8	1.8—	5.0+
	3.2	2.3	112.0	113.0	116.3	1.0	3.3
	3.3	2.45	115.5	118.1	118.5	2.6	.4
	3.4	2.5	119.0	121.0	120.8	2.0	.2
	3.5	2.4	122.5	121.0	123.0	1.5	2.0
	3.6	2.5	126.0	125.3	125.2	.7	.1
	3.7	2.56	129.5	128.6	127.5	.9	1.1
	3.8	2.6	133.0	131.5	129.7	1.5	1.8
	3.9	2.65	136.5	134.6	132.0	1.9	2.6
	4.0	2.73	140.0	139.3	134.2	.7+	5.1—
Total..........	35.4	24.89	12.390	12.392	12.390	14.6	21.6
Dif. per 100 lbs.	....	....	....	....	....	1.5	2.2

In compiling this table the average was taken of the casein content of all the milks testing 3 per cent. fat, 3.2 per cent. and so on up to 4 per cent., representing altogether 466 different samples.

A further examination of this table reveals the fact that the "Fat" method of payment shows a difference of only 1.5 c. per 100 lbs. of milk, and the "Fat+2" method a difference of 2.2 c. when compared with the "Fat+Casein" method. Further the "Fat+2" method on an average gives the 3 per cent. milk 5.0c. per 100 lbs. more, and the 4 per cent. milk 5.1c. less than their actual value, whilst the "Fat" method gives the 3 per cent. milk 1.8c. less and the 4 per cent. milk .7c. more. Thus far the evidence collected points to the "Fat" method as being more nearly accurate than the "Fat+2."

We will now turn to the third line of investigation and see how the three methods of payment compare with the actual yield of cheese.

Equal quantities (from 325 to 350 lbs.) of different milks having varying percentages of fat were taken and placed into separate vats, also an equal weight was placed in a third vat made up of equal parts of the milks used in the former two vats. The three lots were then made into cheese under the supervision of Mr. Echlin, who was instructed to make as fine a quality of cheese as the character of the milk would permit. The following table gives the result of this work.

RESULTS OF MANUFACTURING INTO CHEESE DIFFERENT MILKS CONTAINING VARYING AMOUNTS OF FAT AND CASEIN AT EASTERN DAIRY SCHOOLS

Lbs. Milk	% Fat	% Casein	Wt. Cheese	Value 10c.	Payment of milk on the three methods			Dif. as compared with weight of cheese		
					Fat	Fat+C	Fat+ 2	Fat	Fat+C	Fat+ 2
				$	$	$	$	cwts.	cwts.	cwts.
325	3.8	2.3	31	3 10	3 16	3 15	3 17	6.0	5.0	7.0
"	3.85	2.35	32	3 20	3 20	3 20	3 20	0.	0.	0.
"	3.9	2.4	33	3 30	3 24	3 25	3 23	6.0	5.0	7.0
325	3.5	2.2	28¼	2 82½	2 79	2 83	2 91	3.5	.5	8.5
"	3.95	2.4	32	3 20	3 15	3 15	3 15	5.0	5.0	5.0
"	4.4	2.6	34¼	3 42½	3 51	3 47	3 39	8.5	4.5	3.5
325	3.5	2.5	31	3 10	3 00	3 07	3 10	10.0	3.0	0.0
"	3.85	2.6	32	3 20	3 30	3 30	3 30	10.0	10.0	10.0
"	4.2	2.7	36	3 60	3 60	3 53	3 50	0.	7.0	10.0
350	3.8	2.5	33¾	3 37½	3 39	3 40	3 45	1.5	2.5	7.5
"	4.0	2.6	35.5	3 55	3 57	3 57	3 57	2.0	2.0	2.0
"	4.2	2.7	37¾	3 77½	3 74	3 73	3 68	3.5	4.5	9.5
350	3.6	2.4	33	3 30	3 30	3 30	3 32	0.	0.	2.0
"	3.65	2.45	33¼	3 32½	3 35	3 35	3 35	2.5	2.5	2.5
"	3.70	2.5	34¼	3 42½	3 40	3 40	3 38	2.5	2.5	4.5
350	3.4	2.3	30¾	3 07½	3 19	3 19	3 24	11.5	11.5	16.5
"	3.55	2,4	33¾	3 37½	3 33	3 33	3 33	4.5	4.5	4.5
"	3.7	2.5	35½	3 55	3 48	3 48	3 43	7.0	7.0	12.0
350	3.6	2.5	32¼	3 22½	3 17½	3 20	3 22	5.0	2.5	.5
"	3.75	2.55	32¾	3 27½	3 31	3 31	3 31	3.5	3.5	3.5
"	3.9	2.6	34¼	3 42½	3 44	3 41½	3 39½	1.5	1.0	3.0
350	3.	2.2	28	2 80	2 78	2 80	2 82	2.0	0.	2.0
"	3.10	2.22	28¾	2 87½	2 87½	2 87½	2 87½	0.0	0.	0.
"	3.20	2.25	29½	2 95	2 97	2 95	2 93	2.0	0.	2.0
350	3.4	2.3	31¼	3 12	3 18	3 19	3 25	6.0	7.0	13.0
"	3.6	2.4	33¼	3 32	3 36	3 36	3 36	4.0	4.0	4.0
"	3.8	2.5	36½	3 65	3 55	3 54	3 48	10.0	11.0	17.0
350	3.2	2.15	30	3 00	2 99	2 98	3 05	1.0	2.0	5.0
"	3.4	2.30	31	3 10	3 17	3 17	3 17	7.0	7.0	7.0
"	3.6	2.45	34¼	3 42	3 36	3 37	3 30	6.0	5.0	12.0
								c.	c.	c.
Total milk used 10,275 lbs.					Total difference,.........			132.0	120.0	181.0
					Average dif. per 100 lbs..			1.28	1.16	1.75

The second or centre lot represents the vat containing equal quantities of the first and third in each series of experiments. The cheese were weighed when ten days old and then paraffined. The table here presented gives in detail the weight of milk, percentage of fat and casein, weight of cheese, value of the milk estimated by the three methods and the difference found between these methods, and the actual value as estimated from the cheese. Altogether thirty vats containing 10,275 lbs. of milk were thus made into cheese.

Taking the last three columns, we see the total difference per 100 lbs. of milk of each of the three methods is as follows, ranked in order of merit:

Fat+Casein	Method	1.16 cents.
Fat	"	1.28 cents.
Fat+2	"	1.75 cents.

Here again we see that the "Fat" method is much nearer being correct than the "Fat+2," whilst when compared with the "Fat+Casein" method, there is only .12 or ⅛c. difference per cwt. of milk.

Up to this point we have not considered what effect the fat and casein content of milk may have on the quality of the cheese, and we may now properly turn to this phase of the question.

During the early part of last August, Mr. G. G. Publow, and his assistant Mr. Singleton, conducted a series of investigations at the dairy school. Part of this work consisted of making into cheese milks of high and low fat content. The following table gives the result of this work:

Pounds of Milk.	% Fat.	% Casein.	Weight of Cheese.	Value 10c. per lb.	Value by the three methods.		
					Fat.	Fat + 2	Fat + C.
325	4.0	2.4	31½	$3 15	$3 18½	$3 11½	$3 16
325	3.5	2.2	28¼	2 82½	2 79	86	2 81½

Composition of above Cheese.

—	4 % Milk.	3.5 % Milk.
Fat	36.9	34.2
Casein	23.0	23.5
Water	35.0	37.2
Ash and Alb	5.1	5.1
	100.	100.
Proportionate value	100.	103.8

Here again we get practically the same results as indicated in our previous work, the difference per cwt. of milk being three quarters of a cent for the "Fat" and one and one third cents for the "Fat+2" when compared with the "Fat+Casein" method of payment. In addition we can also study the effects on the quality of the cheese, analysis of which is also here shown.

From a study of this analysis, which is typical of cheese made from rich and poor milks, it is seen that the cheese made from the richer milk has 3.8 per cent. more nourishing substance than the cheese made from the poorer milk; or in other words, one pound or 16 oz. of the cheese made from the poorer milk has only as much nourishing matter as 15½ ozs. of the other.

It is also a well recognized fact that cheese having a high fat content has much better keeping qualities, shows less shrinkage in weight, is much more edible and more desirable in every way than one of a lower fat content.

CONCLUSION.

From a careful study of the data here presented it will be found: First, that the straight "Fat" method approaches more nearly the actual value of the milk, than the "Fat+2" method when quantity alone is considered.

Second, that the difference between the "Fat" and "Fat+Casein" methods is so small that it seems hardly worth while to incur the extra expense of installing and operating a casein tester, and thereby complicating matters still more to adjust this small amount. This is especially true when the question of quality is taken into consideration, which, if done would undoubtedly make the "Fat" as nearly accurate as any method that could be devised.

Mr. John Cramer: Will you kindly give us your views (*a*) an amount of milk testing 3½ per cent. and in good condition will make much more cheese than (*b*) milk testing 4 per cent. in much poorer condition. I claim that the way milk is being tested by the Babcock test is inferior with regard to casein and over-ripe milk.

Mr. Zufelt: Undoubtedly the fat and casein constituents of the milk are not the only controlling factors that determine its value for cheesemaking. You have got to take into consideration the physical condition of the milk, and this, in many cases, has more to do with the actual quantity and quality of the cheese than the fat or casein, but where the different milks are in the same sanitary condition, then 4 per cent. milk will always make more cheese than 3.5 per cent milk. A man should be fined for bringing unsanitary milk to a factory, instead of being paid for it, as it causes an actual damage or loss.

Mr. Cramer: Can you determine the casein in milk? Which is most valuable for cheesemaking the fat or the casein?

Mr. Zufelt: Up to the present time, we have not got any practical means which can be employed in factories for determining the casein in milk.

SECRETARY'S REPORT.

T. A. Thompson, Almonte.

I have the honor as your Secretary to present my annual report.

In reviewing the year that has just closed, it is impossible for me to make my report without first referring to the irreparable loss which the dairy industry of Eastern Ontario has sustained by the removal from our midst of three of its most influential promotors. I refer with deepest feeling to our late President, Mr. J. H. Singleton, to Mr. Edward Kidd, and to Mr. H. M. K. Evertts, men who were charter members of this Association, and who for nearly forty years zealously struggled for the improvement of dairy conditions in Eastern Ontario. They gave to their work the very best they had, themselves, and they were called to their rest with their armour on, and their faces turned to the foe. Encouraged by their example, let us take up the work where they left it off and press forward to a still higher plane.

From a financial standpoint the year 1912 has been a banner year for the dairy industry in Eastern Ontario, not only have the climatic conditions been most favorable for the production of milk, but the high average price maintained throughout the entire season has rendered it the most successful financially in the history of the industry.

Slowly but surely are the dairymen of Eastern Ontario rising to a higher plane. On all sides we see marked evidences of improvement. Better herds are being kept, and more abundant and suitable foods are being provided. The stables are being made more comfortable and are kept in a more sanitary condition. The acreage sown to alfalfa is annually doubling, and the number of new silos erected each year is largely increasing. A better quality of milk is being delivered at the factories and the amount of inferior or undergrade goods being manufactured is largely decreasing. These encouraging conditions have been largely brought about by the untiring efforts of the men engaged in instruction work, and the valuable information being disseminated by this Association through the holding of the annual convention and of the district dairy meetings and by the circulation of valuable literature relating to the more scientific methods of dairying.

The marked improvement year by year in the quality of the dairy goods manufactured in Eastern Ontario can be to a great extent attributed to the excellent work being done by the Kingston Dairy School, in educating the makers and properly fitting them for the responsible positions which they occupy.

During the past year, Mr. F. Brenton, of Belleville, has very efficiently discharged the duties of public prosecutor, and his reports seem to indicate that this Association will be obliged to resort to more stringent methods if the pernicious habit of tampering with milk, which is all too prevalent in some sections, is to be effectually stamped out.

The District Dairy Meetings are annually becoming more popular and through them much valuable information is being dispersed.

The dairymen of Eastern Ontario owe a debt of gratitude to Mr. G. G. Publow and Mr. Henry Glendinning for their unceasing efforts in making the annual District Dairy Meetings both instructive and interesting and thereby assuring good attendance.

I have discharged my duties as Secretary with what ability I possess, and I wish to tender my sincere thanks to the entire Board of Directors for their kindness and forbearance at all times.

Upon motion of SENATOR DERBYSHIRE, seconded by J. R. DARGAVEL, M.L.A., the report was received and adopted.

THE PRESIDENT: I have now much pleasure in introducing to the meeting, Mr. J. R. Dargavel, member of the Legislative Assembly, who will preside at this meeting.

ADDRESS.

J. R. DARGAVEL, M.L.A., HONORARY PRESIDENT OF THE ASSOCIATION, ELGIN.

I assure you that I consider it an honor to be asked to preside at this meeting of the Dairymen's Association in the historic city of Kingston. One has only to look around this fine hall to see the photographs of the eminent men who have helped to make the history of the Dominion of Canada to feel proud of this Limestone City. I believe there is no other place in the Dominion of Canada that has so many historic associations as Kingston. I am sure the young men of the city of Kingston and the County of Frontenac must have an incentive to follow in the footseteps of the men whose portraits we see around this hall.

Most of us in the audience are fully aware of the objects of this Association, which are to promote the interest of the dairymen and of the agriculturists of the Province of Ontario. Kingston may possess large manufacturing industries and places of business: you have your merchant princes and you have your locomotive works where a thousand men go to work every morning, and that is something to boast of; but if it were not for the prosperity of the agriculturist, and the benefit it brings to this section of the country, I doubt if there would be any locomotive works in this city, and I doubt if there would be any demand for those mighty pieces of mechanism, if it were not for the farmers of the country. Therefore, you people of Kingston owe a great deal to agriculture, and sometimes I am astonished to see how little interest the city people take in agricultural matters. It may be that they do not fully comprehend what it means to them.

We have some speakers on the programme whom you will be delighted to hear. The dairymen of the Province owe much to some of the men whom you will hear to-night, and there is no one man at the present time who has been so little before the eyes of the dairymen of the whole Dominion of Canada, and who has accomplished such a great deal for the dairymen than the respected member for the county of Frontenac, my friend, Dr. Edwards. He has certainly grappled with problems connected with dairying and has been a great benefit to the industry. I believe several vexed questions that have been troubling the dairymen for sometime will be settled through the Commission which he was the means of having appointed, and that things in the future will go on more smoothly. I would be lacking in my duty if I were not to mention the assistance which has been given to the dairymen of the whole country by the Ontario Government. I have, perhaps, been looked upon as a leader of the dairy interests, but I would be quite ungrateful if I did not acknowledge the assistance I have received from your local member, Mr. Rankin. I have also received considerable assistance from your city member, Dr. Rose.

You have another representative here in my friend, Mr. Nickle, but he disappointed me very much. There was a Milk Commission appointed a few years ago, for the purpose of looking after the supply of milk for the cities and to obtain a better quality for manufacturing purposes. To my surprise, I was nominated to that committee; Mr. Nickle was put on the same Commission. I do not know why a lawyer should be appointed on a Milk Commission, but I had heard that they did a great deal of milking (Laughter). I did not know Mr. Nickle then, as well as I do now. We had not been working together very long before I found out he knew more about the milk question than I did, and that he made himself thoroughly acquainted with every point, and he was able to take the report in hand and make out a very elaborate one.

I can join with our secretary when he speaks of the losses we have sustained of late. There are now only left of the Old Guard, who were members of the Board when I joined, Senator Derbyshire and myself, and while I have the greatest pleasure in attending the meetings, it brings to my mind, the loss of friends that we have sustained, but I am very proud to see the bright young men who have been elected to the Board. I am pleased to see you, Mr. President, in the chair, and I am pleased that we have such an efficient secretary to look after the interests of the Association.

You are particularly blessed in having a Dairy School. Something was said the other evening of another agricultural college being established in Eastern Ontario. I am sure it would be a great boon to the people of this section, but there is no reason why the sons and daughters of the farmers of this section should wait for the establishment of that college in Eastern Ontario, because it is only a few miles to Guelph, where we have one of the greatest institutions on the continent.

ADDRESS.

W. F. Nickle, M.P., Kingston.

There is one point in respect to which I think I can congratulate your Association, and that is you have one of the most tactful men for secretary that it has ever been my lot to meet. A most innoxious letter came to my office three or four weeks ago, asking when the Dairymen's Association met in Kingston, if I would be good enough to say a few words on the platform at one of its meetings. Being a politician, and anxious at all times to please as many people as possible, I readily wrote him saying yes, and I was surprised about three weeks later when an official programme was place in my hands, to read from it W. F. Nickle, M.P., was to deliver an address—a city member of Parliament to deliver an address to a crowd of practical men who knew infinitely more in one minute about the subjects they had met to discuss than the member for Kingston would know in a lifetime if he studied ever so hard. I wondered what I would speak to you about. My mind ran back to the time when the Dairy School was established in Kingston, and I remembered that I was a director on that Board; but had forgotten the things that were then discussed. Fancy took me back some eight or ten years when I was a dairyman in Kingston myself. Carried away, perhaps, by the enthusiasm of youth, I was filled with a desire at one time to do something for the babies of Kingston through a supply of pure milk, and the desire took me that I would establish a sort of model dairy, and see what I could do to help those who were not able to help themselves, because I appreciated the fact that the infant mortality was high, especially in the congested district, owing to the inability of the poor to supply themselves with milk. For a short time, my scheme worked well, but I was unfortunate in this, that my cattle were too good. Being somewhat of a fancier, my herd was made up of Jersey cattle which I love for their conformation and the gentleness of their disposition; but the milk was so rich in butter fat that it was not going into the homes of the poor people, but into the homes of the more wealthy classes at a price much below that which it cost me to produce. And then I was lured from the toils of the dairyman into the way of the politician, and as has been said, there is a general opinion that the politicians milk the people. He said the lawyers; he carefully excluded the politicians, but I think I can include him in this class with myself. I say that from the general point of view, it is the politicians and not the lawyers who milk the people. However, I want to be serious and speak from the point of view of the politician. Your Secretary said to me that there was one thing upon which I was not to talk, and that was cows and milk, and there was one other thing that he did not want me to speak much about, and that was politics. In relation to his first objection, cows and milk, I yield to it, but I am going to talk about politics, although in such a way that I hope no man in this audience will take offence.

I am speaking to you to-night as a politician, and I am proud to say that I am a politician without cant or pretense. I am proud to say that during my term in the Legislature, and during the two years that I have served in the Dominion Parliament, I have never in my life experience found men who were more anxious and willing to give the best there was in them to advance the cause that is closest to the hearts than the men who fill the halls of our Legislature and the halls of our Dominion Parliament. I think we attach entirely too much importance to the men we call Members of Parliament. We forget what they are. They are the servants of the people. There was a time when the citizens of this country gathered themselves together in halls from one end of this Province to the other and held their popular meetings and chose their men to do their work, but as the country grew, the demands on the time of the men grew and the questions that had to be discussed became too great for the town meetings, and we advanced a step and we chose one of our members and sent him to Parliament to do for the time being, our duty there. It is a strange thing that a man may be ever so decent a man in private life, but the moment he enters public life, a certain class of men seem to think that nothing but unkind things should be said about him. They seem to forget that he goes there as their servant, not to rule them, but to do their business.

When I say that I am proud of being a politician and the member for Kingston, my mind takes me back through the vista of years, and when I remember the men whose pictures are around this hall, I would certainly be remiss if I did not thank the Chairman to-night for the kind things he has said of Kingston, and the men Kingston has produced. We are proud of our past. We remember Sir John MacDonald and Sir Oliver Mowat, and the great part Kingston has played and the part her citizens have played in the development of this country. The men who fill our Legislature and Parliament Halls are high spirited, earnest men filled with a keen sense of duty, and in these days when commerce offers such tremendous inducements to men in the way of money making, it is certainly a satisfaction to sit either in the Legislature or Parliament and see the group of men, not on the Conservative side nor on the Liberal side alone, but on both sides of the House, who give the best of their energy to make of this a great country, men who are striving to do something, not with any idea of personal aggrandisement, but realizing that what they are doing to-day is going to redound to the advantage or disadvantage of the men who are going to fill this country to-morrow and the years that are to come.

The Chairman said that city men as a rule take little interest in what concerns the country. I am inclined to differ from him in that respect, because I do not believe there has ever been a time when the interest of the city and of the country were so closely bound together. There were a number of years when agricultural depression prevailed over this country from end to end, and the farmers had by far the worst end of the deal; but the city man is suffering to-day because the cost of living has so increased. We realize that the farmer must get a fair return for his products, but we would like to see the day when by more scientific management of the soil and more intensified farming, a greater production per acre might be brought about, and if possible the cost of living reduced. I think it was that aspect of the case that appealed most strongly to the city men in the session of last Parliament, when they made a grant of $10,000,000 for the improvement of agriculture in this country. The Dominion Government tried to find out why things were so and so, and the Ontario Legislature tried to show how things should be done. The Dominion Government carried on research work and the Ontario Government tried to show the farmers how to apply it. And this grant is going to be made to the Provinces for a series of years in the hope that much may be done for the agriculture of this country. The cost of living is a matter of grave concern to the city man as well as to the country man.

I am not going to speak at any further length. There are men behind me infinitely more capable than I to speak in relation to agriculture, but if my presence here to-night indicates in the least degree the satisfaction the citizens of Kingston feel in this convention being held in their city, then my purpose in being present has been fulfilled.

In my intercourse with Dr. Edwards, the member for Frontenac, I have learned much in relation to the needs of the county. He placed before the last Parliament, the needs of the cheesemakers of this district as to the weighing of cheese and the prevention of fraud, and succeeded in having a Royal Commission appointed. (Applause.) I believe that is going to result in a great benefit to the dairymen. I will not take up your time further, beyond thanking you and your Association for the honor that has been done to Kingston by holding this convention here, and trust that on some future occasion, we may again have the pleasure of welcoming you and your convention. (Applause.)

The Minister of Agriculture for the Dominion of Canada, the Honorable Martin Burrell, sends a telegram that he deeply regrets that important Government business prevents him being present at this convention. "The Association has my heartiest wishes for its success in the valuable work it is doing." (Applause).

Dr. A. E. Ross, M.P.P., for Kingston, in a brief address strongly urged that an Agricultural College should be established at Kingston to serve Eastern Ontario. R. H. McElroy, M.P.P., for Carleton, and C. F. Bailey, Assistant Deputy Minister of Agriculture for Ontario delivered brief addresses.

MORNING SESSION.

FRIDAY, JANUARY 10TH, 1913.

SENATOR DERBYSHIRE in the Chair.

AUDITORS' REPORT.

At the request of the Chairman, Mr. John Hyatt presented the auditors' report, which was duly adopted.

COMMITTEE ON RESOLUTIONS.

It is the pleasure of this Committee to submit the following resolutions:—

1. That we, the members of this Association, desire to express our appreciation of the kindness of the Mayor and the citizens of the City of Kingston for their kindness and hospitality extended to the officers and members of this Association.

2. That the thanks of the members of this Association be and is hereby tendered to the Canadian Salt Co. through their General Manager, Mr. E. G. Henderson, for the very handsome badges presented by the company to this Association.

3. That the thanks of the members of this Association are extended to the press of Kingston and other cities for the excellent report given by them of this Convention.

4. That as representatives of the Dairymen of Eastern Ontario we are under great obligations to both the Ontario Department of Agriculture and the Dominion Department of Agriculture for assistance rendered the dairy industry in the past, and we wish to express our sincere thanks and appreciation of the work done in many ways by these Departments of Agriculture, and we recommend that the assistance by these Departments be continued in a larger degree during 1913.

5. That realizing the fact that the success of this Convention is largely due to the assistance given by the various speakers and those who furnish the excellent music, we desire to express our appreciation of their efforts and extend to them our sincere thanks for their assistance.

6. That the thanks of this Association are hereby tendered to Messrs. R. A. Pringle, K.C., A. Hodgson, and S. J. MacDowell, as members of the Royal Commission appointed for the investigation into the conditions prevailing in regard to the payment, weighing, etc., of cheese at Montreal, for the valuable practical information presented to this Convention as acquired by their observations in investigation to this date.

7. Moved by T. H. THOMPSON, seconded by WESLEY WILLOWS: That in the opinion of this Association all scales at cheese factories should be tested at least annually, and that the entire cost of the same be borne by the Government.

8. Moved by J. R. DARGAVEL, seconded by J. N. STONE, that this Association is of the opinion that in the interest of the cheese industry of the Dominion of Canada, legislation should be passed preventing the shipment of cheese from place of production under ten days old.

9. Moved by T. A. THOMPSON, seconded by J. N. STONE: That in the opinion of this Association the present mode of payment for cheese is satisfactory, as the bonding of buyers might work to the injury of the producer as the cost for providing such board is bound ultimately to be borne by the producer, and it is open to each and every cheese board to amply protect themselves as is now done by many boards.

10. Moved by J. A. CAMPBELL, seconded by GEO. MCLEAN: That in the opinion of this Association the appointment of a competent official at Montreal by the Dominion Government to co-operate with the Ontario and Quebec Department of Agriculture in advancing the dairying interests is advisable.

Moved by MR. CAMPBELL, and seconded by MR. J. R. DARGAVEL, that the Report of the Resolutions Committee be adopted as read. Carried.

THE CHAIRMAN referred to the large volume of business which had been done with a minimum of loss and a maximum of harmony between sellers and buyers.

TUBERCULOSIS IN THE DAIRY COW.

Dr. T. Torrance, Veterinary Director-General, Ottawa.

Before proceeding to say something to you on the subject of tuberculosis, I would like to express the great appreciation I have for my predecessor, Dr. Rutherford. It is the first opportunity I have had to say this. He was one of my oldest and best friends for a great many years, and I always had a great admiration for his work. I would like to say that since I have been called to Ottawa and have occupied his position my appreciation of that work has greatly increased and I realize the important work he has done in the Department for Canada. In taking over the superintendency of his department, I have undertaken to keep in motion a machine that was well oiled and running in good shape.

This morning I want to say a few words upon that hackneyed subject, "Tuberculosis," and especially as it affects dairy cattle. I may be able to give you a few new pointers with regard to this particular aspect of the case for the reason that the Department over which I have the honor to preside have a Meat Inspection Department which has to do with the inspection of meat in all the large abattoirs in Canada. Every particle of meat which is put before the public from these large abattoirs has passed a careful inspection by the inspectors in my Department, and we have statistics to show how many condemnations occur in each abattoir throughout the whole Dominion for every day and month in the year that has elapsed since this inspection was put in force. From these figures we have reliable data which can be used for the purpose of estimating the extent of tuberculosis in the Dominion. These figures are sufficiently startling in themselves, but we have to remember that for every animal that is killed in these public abattoirs there is probably one or two killed in abattoirs and slaughter-houses and by farmers that are not inspected. The owners of abattoirs are perfectly aware that when they buy an animal they take the risk that it may be condemned, consequently they do not buy animals that look as if they might be condemned, and these animals are left to the people who kill them without inspection. Therefore, we may consider these figures as being derived from the slaughter of the best cattle and not the worst.

People carefully avoid taking the worst cattle to these public abattoirs. They are slaughtered in other places, and I am sorry to say a great deal of that meat is consumed by the public without knowing anything about it.

I am not going to say anything about the nature of tuberculosis. You are all familiar with the fact that it is an infectious disease, affecting not only cattle but human beings, and the great interest in this matter from a dairyman's standpoint is the fact that dairy cattle seem to be especially victims of this disease more so than any other class of cattle. There are some reasons for that: One of them is the fact that dairy cattle are a little more closely housed than other cattle. The necessity of milking them twice a day prevents them from being kept out of doors as much as other cattle, and in many cases they are kept indoors continuously for long periods. These are conditions which favor the spread of the disease.

Another thing which helps the development of the disease is the fact that dairy cattle are usually kept to a greater age than beef cattle. A farmer who is raising beef wishes to put his product on the market as soon as possible, and consequently at two or three years of age the cattle go to the butcher. The dairyman keeps his cow as long as she is profitable; consequently they do not go to the butcher, in some cases, until they are over ten years of age. During these years the disease has an opportunity of spreading and developing to an extent that it would not otherwise.

There is still another reason why dairy cattle are specially prone to disease, and that is that dairymen are continually making additions to their herds. They have to keep up the supply of milk, and in these purchases they are exposed to the chance of buying a tuberculous animal, and the oftener he buys a cow the oftener he takes that chance. When he does buy a tuberculous animal and introduces her to a healthy herd the disease spreads, and before he realizes it his herd is badly infected.

The disease is more infectious among cattle than is ordinarily supposed. The experience that has been accumulated of recent years shows us that when a tuberculous animal is introduced into a herd, it is only a matter of a very few months before the disease is comparatively widespread, so that no one should take this chance of introducing tuberculosis into a healthy herd. The farmer can protect himself if he desires to do so by having the animal tested.

I would like to say a word about the method in which the disease is spread from one animal to another. At one time it was considered that the disease was chiefly carried through the air; that a cow affected with the disease coughed up the material which contained the germs of the disease and that this material was inhaled or drawn in with the breath of the neighboring cows, or the matter became dry, and was carried into the lungs of other cattle through the dust in the stable. More careful investigation and experimentation has revealed the fact that most of the infection takes place not through the respiratory organs of the lungs, but through the mouth and stomach. The germs of tuberculosis can pass readily through the juices of the stomach without being injured. It does not destroy the vitality of the germs, and, passing from the stomach into the intestines, they are absorbed along with the food and pass into the circulation of the blood. The lungs are the first organs through which these germs have to pass the minute blood vessels known as capillaries, so that the fact that the disease is found in the lungs is no indication that the disease has come through the respiratory organs; it may just as well have come through the stomach and the mouth.

It was at one time supposed that the germs of the disease were given off chiefly from the lungs and an animal which was coughing was a dangerous animal, and it was also known that the germs were given off in the milk. It is now known that the germs are very largely given off through the intestinal tract and that the manure of tuberculous cows very often contains millions of these germs. That has a very practical bearing upon dairying and cattle raising. Every tuberculous animal is soiling the pasture and its surroundings, and the practice of allowing cows to run in barnyards and pick over the manure heap is a practice that is almost sure to spread the disease. I could not impress it too strongly upon you that this is the opinion of experts, and the spread of the disease has been checked by preventing the cows from touching any material which has been soiled by manure. We know as practical men how often it is that cattle pick over the manure heap in the barn yard, and this is a practice which should be stopped, because I think it will have a great effect in diminishing the spread of disease.

PROF. DEAN: Do we understand that milk from tubercular cows is not liable to have tubercular germs?

DR. TORRANCE: I was referring merely to the spread of the disease among cattle. They do not drink milk.

PROF. DEAN: Is there any danger of the milk having tuberculous germs?

DR. TORRANCE: That is one of the ways in which the disease is spread, through your young animals drinking the milk. The milk very often contains the germs of the disease, and I am sorry to think that anything I said gave you the impression that such was not the case. The milk of a tuberculous cow is extremely dangerous not only in feeding the calves or swine, but also for human beings, and I do not want you to go away with the idea that I do not realize fully the danger there is in the milk of the tuberculous cow. The milk is a great source of infection, but not to grown-up cattle.

I have here a table showing the number of condemnations of meat in the Provinces of Ontario, Quebec, Manitoba, Alberta, and Saskatchewan. These figures are for three years ending March, 1912, and we have divided the year into two periods of six months each, the winter against the summer, in order to bring out as clearly as possible the difference between the extent to which tuberculosis exists in dairy cattle as compared with ordinary cattle. These statistics cover the cattle slaughtered in these public abattoirs, and the only way in which we can differentiate between dairy cattle and ordinary cattle is that there is a certain period of the year when dairy cattle usually go to the butchers and that is during the winter months. A great many of these dairy cattle which go to the butcher in the winter are what is known as canners, and these of course have to pass the inspection of our inspectors, and they are the ones that are frequently found to be affected and condemned.

During the summer of 1912, we have the percentage of animals killed and affected with tuberculosis of 2.5; of those that were effected 13.78 per cent. were condemned to the tank, the others were fit for human food under certain conditions. During the winter period, we had 3 per cent. affected and condemned 20.3 per cent., an increase of condemnations of 27 per cent. during the winter period when the dairy cattle went to the market. During the last eight months, the figures show an increase of 34 per cent. These figures are instructive because we are able to compare the extent of the disease in the dairy cattle with the extent of the disease in the ordinary run of cattle. In all of Canada, we have an average for the three years of 3.24 per cent. affected with tuberculosis, and of these 13.81 per cent. were so badly affected as to be unfit for food and were condemned to the tank to be rendered down for fertilizers. That was during the six months of summer. In the winter time we had 3.34 per cent. affected, and of these 17.03 went to the tank, or an increase of 23.31 per cent. In the last figures that we have, they show an increase of 54 per cent., clearly demonstrating the fact that in the winter time when the dairy cattle are slaughtered there is always an increase in the number of condemnations. Those figures are sufficiently convincing, but I also have some figures showing the condemnations of tuberculous hogs.

Mr. Glendinning: From your figures, do you think there is any more likelihood of dairy cattle being affected than beef cattle if they were killed at the same age? In other words, are dairy cattle any more susceptible to the disease than beef cattle?

Dr. Torrance: I do not know that they are any more susceptible, but I think they are more frequently exposed to it.

Q.—If they were killed at three years of age would there be any difference?

Dr. Torrance: No, I do not think so. I think dairy cattle are much more exposed to the infection, but I do not know as between one breed and another that there is much choice. They will all take the disease if they get the opportunity.

The figures we have showing the condemnations of hogs slaughtered at public abattoirs are an indication, to a certain extent, of the number of diseased animals that exist in the country. They are peculiarly instructive for the reason that we find hogs coming from dairy counties are much more frequently affected with tuberculosis than hogs coming from counties that are not identified with the dairy industry. Hogs are frequently fed upon dairy products, and too often, I am sorry to say, they are allowed to ramble about in the barn yard and pick over the manure heap. In corn countries, it is frequently the practice to allow hogs to run after the cattle in small lots, the idea being that the hogs will consume whatever is passed through the cow undigested, and in doing that they take into their systems the tubercular germs. The cow and the hog are very closely related in farm practice. The food of the hog very often comes from the cow, and in that way tubercular infection goes from the cow to the hog. The hog is very susceptible to tuberculosis and takes it quite readily, and when we find from the statistics that tuberculosis in hogs is increasing we may take that as an indication that tuberculosis in cattle is also on the increase. We find that in the counties where dairying is very prominent the percentage is usually high, and in other counties the percentage is low.

I will select from this long list a few of the counties which are in Eastern Ontario. In the County of Carleton, we have a percentage of 6.12 per cent. of tuberculous hogs; in Dundas, the percentage is 19.63 per cent.; in Durham, 11.78 per cent.; Frontenac, 5.19 per cent.; Grey, 11.62 per cent.; Haldimand, 10 per cent.; Hastings, 9.5 per cent.; Lennox, 7.11 per cent,; Lanark, 6.82 per cent,; Leeds, 5.19 per cent.; Northumberland 7.39 per cent.; Prince Edward County, 10.23 per cent.; Peterboro, 4.73 per cent,; Russell, 5.18 per cent,; Renfrew, 6.39 per cent. The figures in one county or another may prove exceptions to the rule, but if you take the counties for the whole Province, you will find that the well-known dairy counties are the highest.

A Member: Would the fact that hogs were infected be an indication that the cattle were infected?

Dr. Torrance: I think so. Ontario County is 11.45 per cent.

Mr. Glendinning: That is almost exclusively a beef raising county.

Dr. Torrance: You must understand that these figures apply only to the hogs that go to the public abattoirs. In many of these counties the farmers kill their own hogs. I will give you the figures for the markets of Toronto and Montreal. In the Toronto market we have 16.71 per cent. of the hogs tubercular and in Montreal 5.64 per cent.

Mr. Dargavel: Do you know what proportion of these Toronto hogs are condemned as unfit for food?

Dr. Torrance: These figures do not give that, but I could give you some figures on that point from one particular abattoir. They have the figures for four consecutive years beginning with 1908 and terminating with the past year. Take one particular shipping point, Burketon: in 1908, 698 hogs were shipped from that particular shipping point to the abattoir and 10 per cent. of them were tubercular. The next year, 983 hogs were shipped and 7 per cent. tubercular. In 1910, there were 1,204 hogs shipped and the percentage of tubercular was 14. In 1911, the number of hogs shipped was 1,257 and 14 per cent. were tubercular. In 1912, 1,207 hogs were shipped and the percentage of tubercular was 12. The total number of carcasses inspected was 5,339, of which there were 606 tubercular, making 11 per cent. for the four years.

Mr. Glendinning: That place is a little bit east of Myrtle where the Live Stock Commissioner, Mr. John Bright, comes from, and it is exclusively beef raising through that section.

Dr. Torrance: Suggest some place in Ontario that you would like to have the figures for, and I will give them to you.

A MEMBER: Campellford.

DR. TORRANCE: In 1908, Campbellford shipped 187 hogs, of which 14 per cent. were tuberculous. The next year they did not ship any to that particular abattoir. In 1910, they shipped 1,474 hogs, 5 per cent. tubercular. In 1911, they shipped 3,014 hogs, 5 per cent. tubercular. In 1912, they shipped 601 hogs, 7 per cent. tubercular. Total for the four years, 5,276 hogs, of which 296 were tubercular, or 5.6 per cent. for the four years.

These large abattoirs get their hogs from all over the country, and the fact that an abattoir is situated in Montreal does not mean that it gets its hogs from Montreal.

MR. DARGAVEL: I think you will find that in Toronto they do not get the Eastern hogs.

DR. TORRANCE: Perhaps not.

A MEMBER: Do not you think hogs might be affected with tuberculosis even if they were never fed dairy products?

DR. TORRANCE: No, I think the hogs almost invariably get the disease from dairy products or from following up the cows in the barn yards. I was going to take up the question of how we should try to remedy this infection. When you consider that even the best of the counties have 5 per cent. of tuberculous hogs, the man who comes from that county should not be careless because some other county has 20 per cent. There should not be even 5 per cent. There should not be any tuberculous hogs. One reason why meat is such a high price is that there are so many things that increase the cost and this is one of them. The consumer has to pay for these diseased hogs that go into the tank, and the farmer has to stand his share of the loss. He not only has to take the small price which the butcher gives him, but occasionally he has to stand the loss of animals that die from the disease, and I think it is high time that we did something to arrest the progress of this disease. I would like to impress upon you as dairymen that one of the greatest methods by which hogs become affected is by consuming the products from creameries and cheese factories. We know that these products may be used quite safely if they are cooked. If they are raised to a temperature above 160 degrees, you kill the germs of tuberculosis and the product can be used quite safely. I think every creamery and cheese factory should be compelled by law to raise the product to a boiling point before it is sent to the farmers. If the farmer brings back from the creamery skimmed milk which has been mixed with milk from a tuberculous animal and feeds it to his own hogs, the hogs will become affected with tuberculosis. We do not know at the present time whether there is any danger of the disease spreading from hogs to cattle. Although there may be some slight danger of that kind, the point I want to make is that this practice is probably accountable for the large percentage of tuberculosis in hogs at the present time.

Although my figures have been disputed to some extent, yet I claim that the dairy counties are worse than the beef counties. Is it not more logical to try to prevent the disease from spreading than to try to cure it after it has spread? The position I take is that we should try to avoid any possible source of infection. All the great experts on tuberculosis are agreed that milk is a great source of infection and that the high mortality of infant life in large cities is due, in a great measure, to the fact that the milk they get is not subject to careful control. I think the time is coming when everyone who sells milk should be obliged to have his cattle tested to insure that they are free from tuberculosis.

I assure you that I esteem it a great honor to have the privilege of addressing this important gathering. The Dairymen's Association of Eastern Ontario is doing great work, and I am sure it has the hearty good will of the new Veterinary Director General. (Applause.)

Mr. Glendinning: A number of hides have been returned to the farmers in our county from Montreal and other places, and these hides were brought forward as evidence that the animals were tubercular, and the farmers have been asked to contribute the amount of money that was paid for the cows and in nearly every case, I think the farmers have paid the money back under the impression that they were compelled to do so. I would like to know just what the law is in that regard?

Dr. Torrance: The law prohibits the sale of any animal that is affected with a contagious disease, and there is a list of these diseases which are classified as contagious. It was found advisable some years ago to strike out from that list tuberculosis, for the reason that the Government at that time did not feel in a position to deal with it in the same way that they were dealing with other contagious diseases, consequently, as far as my information goes, tuberculosis is exempt from that particular clause of the Act, and the responsibility for selling a tuberculous animal is not the same as selling an animal affected with a contagious disease which is scheduled in the first paragraph of the Act. I believe it is a trade custom for the butcher to come back to the seller and demand from him the price of the animal, and it seems only fair that the man who sells that animal should bear that loss. The butcher is an innocent purchaser.

A Member: Last winter a drover bought a bunch of beef cattle from a farmer in our section and took them to Montreal, and one of them was found to have tuberculosis, and the drover sued the farmer for the price of the animal and the farmer had to pay the butcher.

Mr. Glendinning: There appears to be some work going on in Montreal that is hardly fair. For instance: hides have been brought back and presented to the farmer and his name was on the hide, and strange to say while the cattle have been on the train between our part of the country and Montreal, the hides have changed color, and that kind of thing makes the farmer suspicious. I understand some of the drovers have established a sort of insurance company and for every animal purchased, they contribute a certain fee to this company.

Dr. Torrance: I understand that on the Toronto market, the drovers have a scheme of mutual insurance to guarantee losses, but I have not heard any particulars of it. I have with me a number of reports on tuberculosis of cattle, and I would like to give them to anybody who would like to take one.

Mr. Henry Glendinning: Last night the directors were kind enough to do me the honor of appointing me as delegate to the Toronto National Exhibition. The dairy exhibit at that exhibition for a number of years has been very small and it does not seem to be growing. We as dairymen have been finding fault with the Exhibition Association for making use of part of the Dairy Building for other purposes, but when you come to look into the question, I do not know that we have so much fault to find with them because we are not filling up that Dairy Building. As the representative from this Association, I would ask all the gentlemen who are present, especially the instructors and makers, to put forward their best endeavor to have as large an exhibit as possible of cheese and butter, so that we can crowd these other people out of our building.

Prof. Dean: I have attended these meetings for twenty-two years and I must say that the farmer is the weakest part of the whole dairy business, and I am afraid they are not attending these meetings. If we had a dairy show where dairy cattle could be exhibited and dairy machinery and butter and cheese, I think we would have a show that would draw out the farmers as well as the butter and cheese makers, and we would be able to show the people of the country what we are doing in dairying. I do hope that your Board will push the question of a dairy show, and bring it before the people of this country in such a way that we will have an excellent show and a large attendance. Our American friends have two dairy shows, and I believe we can put up just as good a show in Canada as they can in the United States.

SENATOR DERBYSHIRE: This matter was discussed last night at some length but no conclusion was come to. I have no doubt it will be acted on in the near future.

MR. PUBLOW: A committee was appointed from the directors of this Association to meet with the directors of the Western Association to see if something cannot be done in that matter.

The Convention then adjourned.

Dairymen's Association of Western Ontario.

The Forty-sixth Annual Meeting of the Dairymen's Association of Western Ontario was held in the Opera House, Woodstock, on the 15th and 16th of January, 1913, and was well attended throughout.

PRESIDENT'S ADDRESS.

D. A. Dempsey, Stratford.

It gives me much pleasure to open this the 46th Annual Convention of the Dairymen's Association of Western Ontario in Oxford, the pioneer dairy county of the Province of Ontario. Well do I remember the last Convention held in this city, and the generous hospitality that was extended to us by the citizens, and the able assistance that was given us by the Board of Trade, the Mayor and the members of the City Council.

The season that has just closed has probably been one of the best in the history of the trade from the producer's standpoint. The wet season produced an abundance of luxuriant pasture and the absence of extremely hot weather and flies, and the cool nights enabled the producer to keep up a high standard of quality, and to produce a large quantity of milk at minimum cost. Although we are told some people had poor pastures during part of the season, yet the latter part of the season was good, and the cattle went into their winter quarters in better condition than ever before.

The price we obtained for our produce during last year was a record one as far as cheese is concerned. In going over the statistics for the last two or three years, we find that in 1910, we were paid an average price of 10.70 cts.; in 1911, 12.18 cts. and in 1912 up to the 31st of October about 13 1-3c., but towards the end of the season values were slightly reduced. We look for an average price of 13c. We had a very steady market during the greater part of the year. It started off at a good price in the spring and continued throughout the whole season with very little fluctuation.

Butter varied much in the same way as cheese. We had an average price for 1911 of about 23.77 cts., and 1912 of 25.75 cts. The price of butter is not governed in the same way as the price of cheese. The price we receive for our cheese is governed by the export trade, but the price of butter is governed by the home market, the supply and the demand, but during the past year, the demand was very keen and probably when the whole season's figures are computed, we will find that butter averaged 27c. per pound.

Our exports for the last year have been about $3,000,000 short of what they were the preceding year. In the preceding year, we exported something in the neighborhood of $19,127,712 worth of dairy products; that is cheese, cream, casein and butter. In 1912, we exported $16,581,661, so you will see that there was a difference of nearly $3,000,000. It was more noticeable in the butter, as very little butter was exported from the Dominion of Canada last year, only a little over 400,000 pounds being exported and most of that was tinned butter, and very little of it went to the British market. We imported about 2,759,928 pounds of butter or nearly $828,000 worth, mostly from New Zealand and the United States. We imported $492,925 worth of cheese, mostly fancy cheese. We have no record of cheddar cheese being imported into this country. It is said that we consume in this country between six and seven times as much dairy products as we export, and if that be the case, we have produced $105,000,000 of milk in the Dominion of Canada, and that is not including what has been made out of the by-products such as beef, pork and poultry. We have no statistics showing what that would amount to, but it would add many more millions of dollars.

All this money has been made from that "angel of mercy," the dairy cow.

In looking over the province, we find that we have 1,445,000 cows and that has made me wonder whether we are getting the returns from these cows that we should. The Department of Agriculture at Ottawa issued a circular (No. 5) showing, where they have been taking statistics, of the benefit of cow testing. We find that in every instance where the farmers have been weighing the milk in these cow testing associations, that there has been an improvement. Some herds have doubled their capacity; some herds that were giving four thousand pounds a year have increased in three years to eight thousand pounds. That is a line of work that every dairyman in the province should get interested in. The day is not far distant, and it will come before we are aware of it, when all the factories will be paying for milk according to quality, and the sooner we begin to find out the quality of our cows the better will we be prepared to meet this innovation.

During the coming season, we may take a new census of the Province of Ontario, and also a ballot giving the opinion of producers as to paying for milk according to quality. If the majority are in favor of it, that system will probably be introduced. While, as I said before, many herds have doubled their capacity by cow testing, we have not yet heard of one case of failure where that method has been adopted. Every man who has tested his cows has increased his production. It has been an eye-opener to him, and he has been able to weed out the poor cows. We are told to-day, that in the Dominion of Canada, farming is not as intensified as it should be. People who travel through other countries come back and say that they are producing in those other countries from two to three times per acre more than we are in the Dominion of Canada, and the same can be said of the dairy cows. We must intensify dairying, and the foundation of the work is to start with the cow and get our cows to give twice as much as they are now doing.

Farmers who join a Cow Testing Association say they are well pleased with the work. They know it is beneficial to them and that is the reason they are continuing in it. They feel that they are working in the dark when they do not weigh the milk, and that it is the fundamental principle of business that every man should know where he is at. And why should not that principle be applied to dairying the same as in any other business?

I do not think the prospects for dairying were ever brighter than they are at the present time. We find from the merchants who are dealing in these products that they all have low stocks of both butter and cheese. The manufacturers of the country are swamped with orders that they cannot fill; wages are high for the artisan and the mechanic, and immigrants are landing at our shores by hundreds and thousands. The great North Western territory will require our goods for years and years to come, and we in the Province of Ontario are geographically situated to supply that market better than any other people in the world.

It is said that the aim of life is to live and be happy, and any man in the Province of Ontario who has a farm well stocked with dairy cows need not envy any other man in any other position, let him be mechanic or professional man. There is nothing in the curriculum of commercial activity that is as safe as the dairy business, and the farmer as lord of the soil calls no man his master.

DIRECTOR'S REPORT, 1912.

SUBMITTED BY D. A. DEMPSEY, STRATFORD.

Your directors are pleased to report that the season just closed has been one of unusual prosperity for the dairymen. Although excessive rains interfered with harvesting the crops, pastures were abundant and the milk supply was maintained well on to the end of the season.

The first important branch of Ontario Agriculture is undoubtedly that of dairying. We assure you that everything possible has been done to further the interests of this great industry, and we believe the work of your Association is appreciated.

PRICES FOR DAIRY PRODUCTS. *Cheese.* High prices were received from April to November. The increased milk flow together with good average prices has been very encouraging to milk producers and factory managers.

Butter. The butter market has been active and the high prices received indicate a strong demand from the growing home market for all the butter we are likely to produce. The export trade was nil in fact, butter is being imported to supply the wants of at least one of the Western Provinces. The cheese and butter makers shared in the advantages of a general increased output and we believe had a fairly prosperous season since climatic conditions were more favorable than in 1911.

MEMBERSHIP. Your Association has a membership of 301. Subscription to Farm and Dairy for one year is included in the membership fee of $1.00.

SPECIAL OFFICER. A special officer was again employed to deal with cases of deterioration of milk. Your Directors respectfully recommend the incoming Board of Directors to continue this system.

DAIRY HERD COMPETITION.—$100.00 for prizes was donated for the Dairy Herd Competition. A full report will be submitted during the Convention.

DAIRY EXHIBITION. $400 in cash prizes has been donated by your Association through your Directors for the Dairy Exhibition. A class for flat cheese was added. We wish to especially thank all those who contributed special prizes. We feel that this exhibition should receive the support of all cheese and butter makers as it has no doubt assisted in improving the quality and finish of our cheese and butter. We respectfully recommend the incoming Board of Directors to continue the exhibition, and trust that a greater number of makers will take advantage of the opportunity to exhibit and advertise their dairy products.

FACTORY IMPROVEMENTS. Several new creameries and cheese factories were built during the past season, and we believe the factory buildings are being improved as rapidly as funds will permit.

INSTRUCTION WORK. The work of dairy instruction carried on by The Ontario Department of Agriculture in conjunction with your Association is resulting in a gradual improvement in the milk and cream supply as well as in the finished product. A full report will be submitted by the Chief Instructor.

SPEAKERS FOR ANNUAL MEETINGS.—Speakers were sent to Annual Meetings of the patrons of cheese factories and creameries, the Dairy Branch of Department of Agriculture very kindly paying the expenses in connection with this work. The milk and cream producers receive much valuable information from the speakers which we believe is appreciated. The work will be continued.

LEGISLATION.—It is expected that one or two clauses of the Dairy Act may be amended at the coming sessions of Parliament.

THE PRESENT OUTLOOK.—The scarcity of farm labor is rapidly becoming a big factor in milk production. It may be that a successful milking machine will be of assistance in solving this problem, in so far as milking is concerned.

Competent assistance for cheese factory and creamery work is also becoming more difficult to secure, and is one of the chief factors in increasing the cost of manufacturing dairy products.

Not many years ago it was said that we would soon be producing more cheese and butter than the markets could absorb. How much in error this prophecy was may be gathered from a view of present conditions. Each year larger quantities of milk and cream are diverted into other channels than that of cheese and butter making. True, this tends to raise the price of cheese and butter, but it is seriously affecting the milk and cream supply of many factories located near shipping points. However, producers were never in a better position so far as the future outlook for increased markets and high prices are concerned.

BOARD MEETINGS.—At the several board and executive meetings your Directors endeavored to transact the business of your Association to the best of their ability. We wish to express our appreciation of the assistance given us by the Ontario Department of Agriculture to further the dairy interests of this province through education, legislation, and money grants. The aim of dairy instruction and of your Association is to place the industry on a solid basis and endeavor to keep the quality of Ontario cheese and butter, second to none produced in any country in the world.

FINANCIAL STATEMENT.

Mr. Frank Herns then presented the financial statement (see page 6).

REPORT OF DAIRY HERD COMPETITION, 1912.

The Association donated $100.00 in cash prizes and Ryrie Bros. kindly donated silver and bronze medals. Following are the rules of the competitions.

CLASS 1.—FOR PATRONS OF CHEESE FACTORIES.

Section 1.—To the patrons who furnish the 1st, 2nd, 3rd and 4th largest amounts of milk per cow to any cheese factory in Western Ontario from May 1st to Oct. 31st, 1912. From herds of 8 to 14 cows (inclusive). 1st, $10.00; 2nd, $7.00; 3rd, $5.00; 4th, $3.00.

Section 2.—To the patrons who furnish the 1st, 2nd, 3rd and 4th largest amounts of milk per cow to any cheese factory in Western Ontario, from May 1st to Oct. 31st, 1912. From herds of 15 cows or over. 1st, $10.00;; 2nd, $7.00; 3rd, $5.00; 4th, $3.00.

CLASS 2.—FOR PATRONS OF CREAMERIES.

Section 1.—To the patrons who furnish the 1st, 2nd, 3rd and 4th largest amounts of butter-fat per cow to any creamery in Western Ontario, from May 1st to Oct. 31st, 1912. From herds of 8 to 14 cows (inclusive). 1st, $10.00; 2nd, $7.00; 3rd, $5.00; 4th, $3.00.

Section 2.—To the patrons who furnish the 1st, 2nd, 3rd and 4th largest amounts of butter-fat per cow to any creamery in Western Ontario, from May 1st to Oct. 31st, 1912. From herds of 15 cows or over. 1st, $10.00; 2nd, $7.00; 3rd, $5.00; 4th, $3.00.

SPECIAL SWEEPSTAKES MEDALS.

A Silver Medal (value $10.00) to the patron who furnishes the largest amount of milk per cow in Class 1, Sec. 1 or 2.

A Bronze Medal (value $10.00) to the patron who furnishes the largest amount of butter-fat per cow in Class 2, Sec. 1 or 2.

RULES OF DAIRY HERD COMPETITION.

1st. No herd of fewer than eight cows will be allowed to compete.

2nd. Figures must be taken from the cheese factory or creamery books, and the number of cows and the total and average amounts of milk or butter-fat must be certified to by the cheese or butter-maker, and the secretary of the cheese factory or creamery.

3rd. The average amount of milk or butter-fat per cow must be calculated on the basis of the total number of cows from which milk or cream is sent to the factory during the season of six months, May 1st to October 31st, 1912.

4th. No substitution of one cow for another will be allowed.

THE WINNERS.

CHEESE FACTORY PATRONS.

Section 1. First—Geo. W. Pearce, Tillsonburg. Miller's Corners Cheese Factory, 100 acres in farm, 14 Grade Holstein Cows, 98,358 total lbs. milk. 7,025 lbs. of milk per cow.

Second.—W. H. Mason, Tyrell, Tyrell Cheese Factory. 130 acres in farm, 9 Holstein grade Cows, 58,810 total lbs. milk, 6,534 lbs. of milk per cow.

Third.—J. A. Thistle, St. Paul's, St. Paul's Cheese Factory, 100 acres in farm, 10 Holstein Grade Cows, 63,964 total lbs. milk, 6,396 lbs. of milk per cow.

Section 2, First.—S. G. Sangster, Rebecca, West Nissouri Cheese Factory, 150 acres in farm, 19 Holstein Grade Cows, 119,007 total lbs. milk, 6,263 lbs. of milk per cow.

CREAMERY PATRONS.

Section 1. First.—R. M. Bowie, Beachville, Beachville Creamery, 50 acres in farm, 9 Holstein Grade Cows, 2,375 total lbs. milk fat, 263 lbs. milk fat per cow.

Second.—Geo. Bourchier, Plattsville, New Dundee Creamery, 25 acres in farm, 8 Jersey Grade Cows, 1,370 total lbs. milk fat, 171 lbs. milk fat per cow.

SWEEPSTAKES MEDALS.

Geo. W. Pearce, Tillsonburg. R. M. Bowie, Beachville.

Mr. Herns then read letters from a few competitors for the purpose of bringing out the fact that the men who are getting the greatest amount of milk per cow in Ontario are following somewhat uniform methods.

Tillsonburg, Jan. 7th, 1913.

DEAR SIR,—You wish some details of how I handled my herd. For the winter season, from Jan. 1st, 1912, the cows are dry till about the last of March. The cows are fed silo feed and bran while milking, and when dry they are fed hay. In the summer the cows are fed silo feed and bran. They are given abundance of pasture during the summer months. Each animal was fed half a bushel of ensilage and about four pounds of bran for each ration, twice a day.

I am a firm believer in feeding no straw whatever at any season of the year.

In the spring when the cows first freshen, they are fed some oat chop besides the regular rations.

I keep a pure bred sire.

GEO. W. PEARCE.

Tyrell, Jan. 5th, 1913.

Dear Sir,— A pure bred Holstein sire has been the foundation stock for the grades, but now all the young stock is pure bred, and seven of the nine cows are Holsteins, the other two being grade Holstein.

During the month of May, the cows received what hay and ensilage they would eat until they went out to pasture, and during August, September and October, they were given green corn for bulky feed along with the pasture. The grain ration varied during the season. In the early part, I fed Manitoba wheat chop, shorts in the summer and oats and barley chop after new grain was threshed. The wheat costs 75 cts. per bushel; shorts was $1.30 per cwt.; and considering the cost of oat and barley chop this fall, an average of $1.25 per cwt. would cover the cost of grain for the season. The total amount fed was 3,800 lbs. at $1.25 per cwt. is worth $47.50.

The total age of the nine cows is thirty-seven years, or an average of four years. The first nine days in May we separated once a day, a fact which is rather against the herd average for six months. The cows freshened from February 20th, to April 4th in the spring, and when they have their season complete I am sure the total of the nine cows will be over 108,000 lbs. of milk.

We keep daily records, and the seven pure breds are all in record of performance work, so we know the test of the different cows as well as the milk production.

In conclusion, I might say I believe if we could induce all dairymen to test their cows and keep records of milk production and feed consumed, it would be but a few years until only good cows would be seen on Canadian farms.

Wallace H. Mason.

St. Paul's, January 8th, 1913.

Dear Sir,—I was very much pleased on receiving your letter telling me I had taken third prize in the Dairy Herd Competition.

You also asked me to give you some particulars as to how I handle my herd. I have not very much to tell that would be interesting, as I do not claim to be an expert at the business.

I have been keeping a pure bred Holstein sire for the past ten years, and raise most of the heifer calves. We have our cows freshen as early in the winter as possible, as it gives a much better chance to raise the calves, especially when the milk goes to the cheese factory; and we think winter dairying is just as profitable as summer dairying, if not more so. We had only a very small supply of ensilage for last summer, as our silo was very nearly empty when the cows went to grass in the spring, but would very much like to have a small silo just for summer feeding, as it is not a safe plan to depend on grass alone. We weigh each cow's milk and keep daily records.

J. A. Thistle.

London, Ont., Dec. 13th, 1913.

Dear Sir,—In answer to your letter informing me that I had won first place in Section 2, of the Dairy Herd Competition, I may state that I was surprised as I did not expect anything, as I never thought of competing until September.

Perhaps it was just as well for the calves I raised in the spring, or I might have been ashamed of them. Well, as to the herd, they are all Holstein grades, except three, and one of them is a pure bred Holstein heifer and the two are Ayrshires (which are for sale), as I have got plenty of Holstein heifers to take their places.

We always keep a pure bred animal of the best breeding we can get, and raise our own calves as much as we can; but never raise over two or three in one year. Our method of raising them is very simple—feed them all the new milk they can drink for the first two or three months, and after that turn them out to grass and give them new milk and boiled flaxseed meal about half and half and they are always ready to drop their first calf at two years or before. I think it is better to lose about five or ten dollars in milk the first year than lose another year, for four of our herd this summer were two years old, and one of them milked since November, 1911. I think a man of common sense can tell a cow that is not paying, and I soon get rid of them and sell them to the butcher, for I don't like the method of selling cull cows to be peddled around and have some poor unsuspecting brother farmer get bit. I think that is about the worst fraud we have in the country. Well, I have said enough on that line and perhaps too much for some, so I will turn to the feeding, which is very simple, if you have plenty of feed and the heart to give it to them. For the first thing, we don't sell any rough grain, but feed it all; and as we grow quite a little oats and barley, we feed chop pretty nearly the year round, and give a cow as good care when dry as when milking. We milk them from nine to ten months a year, and it does not hurt them if they are well fed. I very seldom feed more than four quarts to a cow at one time, and along with my coarse grain chop I always keep bran and mix it about half and half. I find the latter half of July or August the hardest time to keep up the milk flow, but I always get a ton of shorts on hand for that time and mix it with bran, it helps to keep them there. I grow sugar beets, and sow some early corn, and by the middle of August there is plenty of corn fit for use; so I draw a load of roots and corn at night after milking so they can fill themselves and lie down for the night and save the pasture for daytime.

There are just three things necessary for a dairyman:—a good cow, plenty of feed, and good common sense.

S. G. Sangster.

Record of Mr. S. G. Sangster's Herd of Nineteen Holstein Grade Cows

	Milk	Money
April	9,619	$97 20
May	20,876	222 18
June	22,311	228 06
July	19,774	199 99
August	20,061	215 91
September	18,026	202 34
October	17,959	213 40
November	16,366	173 77
December	13,521	172 77
	158,513	$1725 62

The Chairman: You have heard the report of the Dairy Herd Competition. I have been running over a few of the figures to see what these cows averaged for the six months, and it is in the vicinity of $80 a head, computing the product at the average price that was paid this year. If all the cows in the province of Ontario made as good an average, what a tremendous amount of wealth would be put in the pockets of the farmers. What others have done, you can do and you may improve upon it. It is to be regretted that in many of our factories, there are so few who enter into this Dairy Herd Competition. A farmer who has a family cannot do anything better to help educate his children and to keep them interested in farm work. This work gives him prominence and helps him to learn better methods and make more money.

THE ALFALFA SITUATION IN ONTARIO.

Prof. C. A. Zavitz, Ontario Agricultural College, Guelph.

Alfalfa is being recognized more and more as a most valuable farm crop for Ontario. Its perennial character of growth, its power of making use of the free nitrogen of the atmosphere and of the fertilizing elements of the subsoil, and its capacity of producing large yields of exceptionally nutritious feed for farm stock, combine to place this crop as one of the most important which can be grown. It possesses a combination of characteristics which is not found in any other farm crop. Alfalfa starts its growth early in the spring, which continues throughout the summer, and even late into the autumn. Under favorable conditions it produces two or three crops per annum, and thrives for several years without the necessity of re-seeding. The feed is relished by practically all kinds of farm stock. It can be fed in the green or in the dry condition, can be converted into silage, and in a few instances can be pastured at certain times. In at least some localities over Ontario, the second crop in the season is allowed to ripen for seed production to good advantage. Alfalfa is particularly suitable for use in a long rotation and leaves the soil in an excellent condition for the growing of other farm crops. In order, however, to make alfalfa growing successful it is important to sow the right kind of seed on suitable soil, and to employ the best methods of culture.

A few years ago alfalfa was grown in Ontario by a comparatively small number of farmers. In recent years, however, the growing of alfalfa has become popular owing to the marked success obtained with this crop in various parts of the Province. Many farmers are now sowing alfalfa in such a way that poor results are almost sure to follow, while others are using much better methods and are almost sure of obtaining results of a most satisfactory character. From experience obtained from conducting experiments with alfalfa at the Ontario Agricultural College within the past twenty years; from results of the co-operative experiments with this crop; and from the observations of the alfalfa grown in a practical way by the farmers of Ontario, we believe that suggestions can here be given which might prove of much service. The selection of this subject for discussion at this time at the convention of the Dairymen's Association seems very appropriate, and it is hoped that there may be a good discussion by the members present.

Soil Conditions: It is practically useless to sow alfalfa on land which has a cold, wet subsoil. It is absolutely necessary for the roots of alfalfa to have an opportunity to penetrate the subsoil to a depth of a few feet before the water level is reached, or the plants cannot live many years. Alfalfa usually does particularly well on sloping land or on hillsides, providing the land is not of a springy character. Alfalfa sometimes does well on the lower parts of the land where the subsoil is not wet and the water does not remain on the surface of the soil in the spring of the year. Land which is naturally well under-drained is very suitable for alfalfa growing, but other lands will sometimes give fairly good results with alfalfa if they are artificially under-drained.

If lime is lacking, it is exceedingly important that it be applied and incorporated with the soil. As there is a considerable amount of lime in much of the soil in Southern Ontario, the advantages from the application of lime are not nearly as marked as they are in some of the States of the American Union where it is practically impossible to grow alfalfa successfully without lime applications.

While it is important to have fertile soil which is well under-drained, it is also very important to sow alfalfa on land which is comparatively clean. Land which has grown a crop of potatoes, corn or roots, and which has been thoroughly cultivated, should furnish a good seed bed. When it is desirable to sow alfalfa after a grain crop or after a sod the land should be worked thoroughly in order to kill the weeds and the grasses, and the alfalfa seen can usually be sown alone in the month of July.

Good Seed of a Hardy Variety.—Good, plump seed free from impurities, and of strong germinating power should be used. Unless care is taken in ordering alfalfa seed there is danger of securing weed seeds, which cause much labor in purifying the alfalfa crop in future years. Every person ordering alfalfa seed should become thoroughly familiar with the Seed Control Act, copies of which are obtainable from the Seed Branch of the Department of Agriculture, Ottawa.

Not only is it important to use seed which will score high in purity and in germination, but it is also of very great importance to use seed of a hardy variety if it is the desire to crop alfalfa for several years in succession without re-seeding. Recent experiments, which have been conducted at the Ontario Agricultural College, show us that there is a very great difference in the hardiness of different kinds of alfalfa. We have under experiment alfalfa grown from seed obtained from different parts of Ontario, United States, South America, Europe and Asia. In one experiment which has extended over the past four years seventy different kinds of alfalfa have been tested under uniform conditions. In some of these plots there is at present almost a perfect stand of plants, while in others every plant has disappeared through the influence of the past two or three winters. The following table gives the average results in tons of hay per acre for each of the past three years from some of the different kinds of alfalfa:

Alfalfa or Lucerne, O. A. C., 1912.

Country.	Strain.	Tons of Hay per Acre.		
		1910	1911	1912
Peru	Peruvian	2.6	.0	.0
U.S.	Grimm, Minnesota	3.6	2.7	4.6
U.S. Common	Texas	2.1	.5	.7
	Utah	2.6	.6	.6
	Colorado	2.1	.4	.6
	Nebraska	2.5	.6	1.1
	Montana	2.4	1.0	1.6
U.S. Special	Variegated, Kansas	2.2	1.2	1.5
	Wheeler, S. Dakota	3.1	2.5	4.1
Canada	Variegated, Ontario	3.4	2.0	4.1
	Common Violet, Ontario	3.2	.8	2.5
	Variegated, Ontario	3.6	2.2	4.9

It will be seen from the tabulated results here presented that there is a great difference between the Peruvian and the Grimm varieties of alfalfa. Here we have a comparison in the results of a tender, southern alfalfa, and of a northern, hardy variety. Practically all of the plants of the Peruvian alfalfa were killed in the spring of 1911, and under similar conditions the Grimm alfalfa came through with almost a perfect stand.

A great deal of the alfalfa seed which has recently been imported into Ontario belongs to the Common variety, and comes from Utah, Colorado and Nebraska. It will be seen that the plants of the Common variety from these Western States are very tender, and were almost completely winter killed during the past two years. The Common alfalfa obtained from Montana is said to be about the hardiest strain of the Common alfalfa in the United States, and yet the results are comparatively low in Ontario. Even this strain of Common alfalfa has been badly winter killed at the College.

The two special lots of seed obtained from Kansas and from South Dakota have been noted for their hardiness in the United States, although they are still grown only to a very limited extent. The sample received under the name of Variegated alfalfa from Kansas has not proven to be variegated, and has given comparatively low results.

The three lots of alfalfa from Ontario seed show some very interesting results, the two variegated lots coming in the same class for hardiness as the Grimm alfalfa of Minnesota, and the Wheeler alfalfa of South Dakota. Two of the most important points in connection with this experiment appears to be the superiority in hardiness of the Ontario variegated alfalfa over the Common Violet alfalfa of the United States, and the superiority of the Ontario variegated alfalfa over the Common violet alfalfa of Ontario. As the results of experiments conducted at the Ontario Agricultural College at Guelph, it seems very evident that the four hardiest alfalfas for sowing in Ontario are the Grimm alfalfa of Minnesota, the Ontario Variegated alfalfa, the Baltic alfalfa of South Dakota, and the True Sand Lucerne. It is very important to secure seed of a hardy alfalfa if it is desirable to obtain satisfactory crops of alfalfa in Ontario for several years in succession without re-seeding.

Inoculation of Seed or of Soil.—Many of the soils of Ontario which have not grown alfalfa previously do not contain the alfalfa bacteria in the soil. It is wise to introduce this bacteria either with the seed which has been inoculated or with the soil obtained from a field on which alfalfa has been grown successfully, and in which there has been an abundant development of the nodules on the roots of the alfalfa. If the proper bacteria are not present the alfalfa must secure its nitrogen from the soil. With the proper development of the nodules on the roots of alfalfa the plants have the power of making use of the free nitrogen of the atmosphere as well as the nitrogen which is already in the soil. As the seed can be so easily and so cheaply treated it is usually wise to treat the seed unless it is known that there is an abundance of the proper bacteria in the soil. For further information regarding the inoculation of alfalfa seed inquiries should be made to Professor S. F. Edwards, Bacteriological Departmet, Agricultural College, Guelph.

Time and Method of Sowing.—Under average conditions in Ontario the alfalfa seed should be sown at the rate of about twenty pounds of seed per acre, and the seeding may take place at any one of three different times of the year as follows:

1. Alfalfa seed may frequently be sown on winter wheat in the early spring either on the old snow or on fresh snow of one or two inches, and no harrowing or cultivation is necessary. When this method is followed the soil should be free of grass and weeds, and the wheat should not be very thick on the land.

2. On a suitable seed bed, and as soon as the land is sufficiently dry in the spring, alfalfa seed may be sown from the grass seed box placed in front of the grain drill. About one bushel of barley or spring wheat per acre sown from the tubes of the drill makes a very good nurse crop. After the seed is sown the land should be harrowed lightly. This method usually gives very good results providing the land is in a good state of cultivation and is in a clean condition.

3. Alfalfa may usually be sown alone to good advantage in the month of July on a summer fallow, providing there is sufficient moisture for good germination. This is a good system to follow providing the land produced a crop of grain or was a sod in the year previous to the sowing of the alfalfa seed.

It is nearly always wise to leave the alfalfa undisturbed the first autumn. If there are weeds, however, which are likely to go to seed or if the crop is so heavy that there is danger of smothering in the winter a mowing machine can be run over the field so as to cut the tops off the plants, which could lie as a mulch on the field.

Uses of the Crop.—The alfalfa should be cut just as it is starting to blossom, and great care should be exercised to cure the alfalfa so as to retain as many of the leaves as possible, and to protect the crop from rain. The exact method to be used depends largely upon the amount of crop and upon the conditions of the weather. The second crop in the one season may be used for hay or allowed to ripen for seed production. If the second crop is used for hay there is frequently a third crop which may be converted into hay, or in some instances used to excellent advantage for mixing with corn when filling the silo. At the Ontario Agricultural College for the last fifteen years we have obtained an average of three cuttings of alfalfa per year, with an average total yield of a little over twenty tons of green crop, or 4.8 tons of hay per acre per annum. The average for Ontario is usually about two tons of hay for the first crop, one ton per acre for the second crop, and from one-half to three-quarters of a ton per acre for the third crop. Where seed is produced from the second crop the yield usually varies from about one-half to seven bushels, the average being fully two bushels per acre. If alfalfa is ever pastured it should be done with great caution, as the pasturing frequently ruins the crop. On those farms of Ontario where alfalfa can be raised successfully, it is undoubtedly one of the most important crops which can be grown.

We have in this Province the variety known as Ontario Variegated alfalfa, which is hardy. The Grimm alfalfa of Minnesota is also hardy, but the common alfalfa from the Western States is very tender. A good deal of our seed during the last two or three years has come from the Western States. I know that car load lots of alfalfa were brought into Ontario from Utah. It is very easy to understand why this seed is tender. Most of the seed grown in the Western States traces its history to seed that was brought either by the Spaniards into Central America or into Mexico many years ago, and from there it came northward into California, and from there is moved eastward to Utah, Colorado, Nebraska, Kansas and up into Montana, and our seedsmen find they can get seed in these Western States in car load lots, and at reasonable prices. It is only in recent years that we have found out how tender the common alfalfa from the Western States is when sown in Ontario. We must realize that we are apt to lose our entire crop in a severe winter if we use the common Western seed.

I will not take time just now to give the history of this Grimm alfalfa and the Ontario Variegated alfalfa; both of them have been grown in America from forty to over fifty years and have come through the severest winters. The tender plants have killed out and the hardy ones have continued to produce seed, and in that way we have the benefit of a very rigid natural selection. I notice that in Oxford County there are not so many growing alfalfa, as in some of the other counties such as Haldimand, Lincoln, Welland and Lambton. I do not know whether it is that your land needs under-draining, that you have not inoculated the seed, that you have used a tender variety, or some other cause, but I believe the time will come when you will grow a great deal more alfalfa in Oxford County than you are growing at the present time.

I wish to take this opportunity of having all those present hold up their hands who think that with proper methods, alfalfa can be grown with a good deal of satisfaction in Oxford County.

There is certainly a good showing of hands in response to this question.

I now ask if those who think the opposite will kindly hold up their hands.

In response to this enquiry I see only one hand showing up against alfalfa in this large audience.

I believe alfalfa can be grown successfully in Oxford County. I have a list in my office of 700 men who are growing alfalfa in Ontario, and there is only a small number of them who reside in Oxford County. The greatest number are in Haldimand County, and then in Lincoln and Welland, and there are quite a number in Norfolk, Wentworth, and Waterloo, a large number in Lambton, some in Kent, and not very many in Perth, Elgin, Oxford or Middlesex. In connection with your dairy work and your corn growing, it seems to me that alfalfa would be a most valuable crop for you to produce.

MR. G. A. PUTNAM: Some of our Institute workers have reported a great many failures in Oxford County in growing alfalfa; the farmers have had very good catches, but they have not been able to keep the crop growing. I am glad to see that so many farmers are growing it successfully now. I know that was not the case some three or four years ago.

PROF. ZAVITZ: I think the experience in Oxford County is very much the same as it has been in other counties. There is a reason for every failure. I think that one of the reasons for failures in Oxford County is because they have been sowing a tender alfalfa. We know from our experiments that a tender alfalfa will not survive some of our severest winters. We have at the Agricultural College many plots of alfalfa from the common seed of several Western States, some of them four and some eight years old, and they have all winter killed badly. The several plots of Ontario Variegated alfalfa have all survived the winters splendidly. Another cause of failure is probably the cold, wet sub-soil. Alfalfa will not thrive on land where the sub-soil is wet and cold. Another probable cause of failure is the lack of the proper bacteria in the soil, and the seed has not been inoculated. I would mention these things particularly as some of the most likely causes of failure in this section of Ontario.

A MEMBER: When do you cut the alfalfa? When you first see the flowers, or do you wait until about one-third of them are out?

PROF. ZAVITZ: Just when the plants are beginning to come in flower, when about one-tenth of the flowers are showing.

Q.—How are we to know when we are getting the Variegated and Grimm alfalfa seed?

PROF. ZAVITZ: There are no striking features which will distinguish the seed. You can tell these varieties by the variegated flower colors which contain blue, green and yellow shades in addition to the purple. Last summer about ninety leading Ontario farmers who had been appointed by the Government to judge the standing fields of farm crops in connection with the work of the Agricultural Societies met at the Agricultural College for a couple of days. When there they were shown the various kinds of alfalfa of various ages which were under experiment. They were so impressed with the importance of securing hardy strains that they appointed a committee of two to interview the Dominion Minister of Agriculture, and ask that the Seed Control Act be so revised so that the seedsmen who sell alfalfa seed would, in every case, name the country in which the alfalfa seed was grown. This would help the farmers considerably in distinguishing between what would likely be tender and what would likely be hardy. I was one of the members appointed on the committee. Wet met at Ottawa, and had an interview with the Minister of Agriculture in accordance with the resolution passed by the farmers. The Minister of Agriculture promised to look into the matter, and in consultation with the Seed Commissioner, Mr. G. H. Clark, to see what could be done in regard to the carrying out of the request of the resolution.

The Variegated alfalfa is a cross between the common alfalfa and the yellow flowered alfalfa that grows on the roadsides in Siberia and other eastern countries. The cross gives a variety of flowers, and some of the plants are very hardy. Some of this Variegated alfalfa was brought into Welland County by a Mr. Bethel, in 1871, and by Dr. Culver in 1875, and the farmers have continued growing these strains ever since. The severe winters would kill out some of the more tender plants, but the hardy plants have survived. It is nearly all the Variegated alfalfa that has been grown in that district for forty years, and it is now very hardy.

This year I had two men visit 150 farms in Ontario to examine the percentage of Variegated alfalfa, and I have with me the reports from five counties that were visited. On most farms in Welland and Lincoln, the farmers grow the Variegated variety. The two investigators examined 24 fields in Welland, and 45 in Lincoln, and of the 24 in Welland, the lowest percentage of Variegated was 20 per cent. and the highest 70 per cent., and the average 44 per cent. In Lincoln, the lowest was 2 per cent., the highest 90 per cent., and the average 43 per cent. In Haldimand they examined 32 fields. Some fields had no variegated, and the highest was 75 per cent. which was around Wellandport. The average was 20 per cent.

A MEMBER: They have the soil along the lake shore for growing alfalfa, but we have not got it in Oxford County.

PROF. ZAVITZ: It is true they have very good soil, but alfalfa is grown in the centre part of Lincoln and Welland, quite a distance from the lakes. They have rolling land there and they are getting excellent results. We can grow alfalfa at Guelph, and we are a long distance from the lake. You must get the hardy varieties of seed if you want to grow alfalfa successfully I have come to the conclusion that the seed grown in the Niagara Peninsula will give better results in Oxford County than the kind which has been sown in the County in the past years. The seed from Welland and Lincoln of the Variegated alfalfa is better than any American seed we can get, except the Grimm alfalfa of Minnesota, and the Baltic alfalfa of South Dakota.

A MEMBER: I got my seed last year from Wentworth County, and I had a splendid catch, and I think it will give better results than the American seed.

PROF. ZAVITZ: I think that is true, and yet all Ontario seed is not the same, because we have common alfalfa grown considerably in some parts of the Province. I am frequently asked, "Where can we get Variegated alfalfa in Ontario?" I was in hopes this year that we would be able to get a lot of seed in Ontario, but last year we had a great deal of wet weather and the people in Lincoln and Haldimand Counties cut the first crop of alfalfa for hay, and left the second crop for seed, but the rains were so abundant that the crop kept growing continually and did not ripen seed, and the farmers cut the second crop for hay instead of for seed. I spent a whole week driving from one farm to another, and the alfalfa was all growing instead of ripening, and there is very little Variegated alfalfa seed to be obtained in Ontario this year.

Q.—Now then, what about the situation at the present time? Where can you get the seed?

PROF. ZAVITZ: If you can get Grimm alfalfa, that is one of the very hardiest, and the Baltic alfalfa is good. True Sand Lucerne is a hardy variety, and Turkestan alfalfa is fairly hardy. The poorest of all is the common alfalfa from the Western States, and this tender seed has recently been brought into Ontario by car load lots.

A MEMBER: It is nearly all Montana seed that is used here.

PROF. ZAVITZ: The Montana seed is the best of the common alfalfa in the United States, but it depends a great deal on how long it has been grown in Montana. If it was grown in Utah one year and then in Montana the next year, it is not so much better than Utah seed. In our experiments at Guelph, the Common alfalfa of Montana is only about one-third as hardy as the Ontario Variegated or the Grimm alfalfa.

In another year, I hope we will have a good supply of Ontario Variegated seed. In the meantime I would advise you to try to get the Grimm or the True Sand Lucerne or the Baltic. If you want a short rotation—and it does not matter very much whether you keep it more than two or three years—then the Western seed might answer, providing the winters were not very severe; but if you want to put down a field of alfalfa for a number of years you must use a hardy variety. I have seen alfalfa in the Niagara Peninsula for ten, fifteen, twenty, and in some cases twenty-two and twenty-three years old, which had produced crops continuously without re-seeding. You cannot expect crops like that unless you have a hardy variety. Because you have had a failure yourself, do not think that alfalfa is all bad. It is quite probable that you had a poor kind of seed, or that your land was wet, or your method of cultivation was wrong. In some sections of Ontario where they never grew alfalfa before, they started by growing a tender variety, and that fact has given a setback to alfalfa growing in the district.

Q.—These fields that you spoke of as having been down for twenty or twenty-three years, were they ever pastured?

PROF. ZAVITZ: If they were, it was done very cautiously.

Q.—Were they manured?

PROF. ZAVITZ: Some farmers manured as a top dressing, and some did not. I made enquiries about all these points, and some people have been growing alfalfa for ten, twelve or fifteen years without manuring very much. Some have put on a top dressing and they say that when you put on a top dressing of farmyard manure, you should be very careful not to bring in weed seeds. Personally, I think it is wise to top dress.

Q.—Will you tell us the best way of curing alfalfa?

Prof. Zavitz: It depends a good deal upon the condition of the weather, and whether you have a heavy or a light crop. Under average conditions, I think you will find that if you cut it in the morning when the dew is off and then in the afternoon put a tedder over it, you will be able to rake it up into windrows that evening, or it may be necessary to shake it again the next day. Do not allow it to lie too long in the dry sun because if you do, the leaves will drop off. Chemists tell us that the alfalfa leaves are worth more in composition than bran; that there is as much albuminoids in a ton of alfalfa hay as there is in twenty-eight hundred pounds of bran, so that it is very important that we retain the leaves. When you cut it, cock it up so as to save the leaves and protect it from the rain as much as possible, and after it is cocked up three or four days, simply turn the cocks over and let them get the air in the forenoon, and in the afternoon you can haul the crop into the barn. Of course these operations have to be regulated according to the size of the crop, and the conditions of the weather.

Q.—Do you not think where alfalfa has been tried and does not do well, it would be better to sow about half of red clover with the alfalfa until the ground becomes thoroughly inoculated?

Prof. Zavitz: The inoculation of the two is not the same. The bacteria that works on the alfalfa is not the same bacteria that works on the red clover, and red clover will kill out in a short time and there is the danger of the alfalfa becoming too thin. I would rather study the best way of putting in the alfalfa alone, and get the best seed. I believe it is a good plan to sow a pound of alfalfa along with the mixture of red clover and timothy as usually sown by farmers.

A Member: I had a little experience with alfalfa on a piece of ground that was bad with bindweed, and I sowed alfalfa with barley and I have not seen a blade of bindweed since, and that was three years ago.

Prof. Zavitz: That was a good point in favor of alfalfa.

Q.—Would alsike be any better than red clover to sow with alfalfa?

Prof. Zavitz: It probably would be a little better, but as a hay crop, I would prefer alfalfa alone or with a hardy grass. If you want it for pasture, I would put in some of the hardy grasses and about five pounds of alfalfa per acre. I recommended some alfalfa in the mixture for pasture, and if the animals kill it out in four or five years the roots will rot and supply fertilizing materials to the grasses and clovers, from which you will get a good deal of benefit in that way. For permanent pasture purposes we have found the following mixture and quantities of seed per acre to give excellent satisfaction on an average Ontario soil: alfalfa, 5 lbs., alsike clover, 2 lbs., white clover, 2 lbs., orchard grass, 4 lbs., meadow fescue, 4 lbs., tall oat grass, 3 lbs., timothy, 2 lbs., meadow foxtail, 2 lbs., making a mixture of twenty-four pounds of seed per acre.

Q.—What difference is there between alfalfa, red clover and peas for fertilizing the soil?

Prof. Zavitz: They are all leguminous crops and furnish material in both the roots and the tops which is rich in fertilizing material. The alfalfa and the clover have the advantage over the peas in root development. I remember a few years ago carrying on experiments which were repeated in each of four years, in which, in one case I ploughed under buckwheat—a good crop each year—and right beside it, I ploughed under a full crop of peas, and then we sowed winter wheat. We ploughed under the crop about the first of August, and worked the land on the surface for a month and sowed winter wheat the first of September. We repeated that the next year in a different place, and did likewise in each of the following two years. We got an average of four years' results. We found that we got from buckwheat ploughed under, a very good crop—an average of between twenty-nine and thirty bushels of wheat per acre; but from the peas ploughed under we obtained a little over thirty-six bushels of wheat per acre. These results strike me as rather important, there being a difference of six and one-half bushels per acre per annum from the peas as compared with buckwheat. I have not conducted experiments with the clover and peas in just the same way.

Q.—What about ploughing alfalfa under?

Prof. Zavitz: You would get very excellent results, but I would suggest that you cut the alfalfa and use it for feed because it makes a very rich feed; you can save the manure carefully and also retain the liquid manure by using straw, and putting the manure back on the land, and you will get from 75 to 90 per cent. of the fertility that is in the feed. If you are feeding cows and selling the milk, and do not get any skimmed milk back, you send away about 25 per cent. of the fertility; but by proper management you may get about 75 per cent. of it back on the land. In that way you have the direct returns from the alfalfa, you retain the most of the fertility that is in the crop, and you have the roots to plough in the soil. The composition of the roots is not very different from that of the upper parts of the plants.

I remember one year we had barley on different plots which had previously grown alfalfa, clovers and grasses, and I took ten thousand people to see this experiment. In three plots we had timothy, orchard grass and meadow fescue, and in four plots, red clover, alsike clover, mammoth clover and alfalfa. This test was repeated four times making twenty-eight plots in all. We grew these for two years, removed the crops, ploughed the land and put in barley, and it was a great object lesson. I frequently asked the visitors if they could observe any difference in the barley, and they invariably said they saw a very pronounced difference in the two groups of plots. Where the alfalfa and the clovers had been grown, the barley was about twice as good as it was on the other plots. You generally sow timothy and clover together, and you get the clover one year and the timothy the next; then plough the land and sow or plant another crop in the following year, and you do not know the comparative results you get from the clover and the timothy. But when they are sown separately a tremendous difference in the results is observed, because clover will add to the fertility of the soil, and timothy takes the fertility from the soil. There is not very much difference between red clover and alfalfa, but I think alfalfa is rather the better of the two.

Q.—Do you find it hard to plough the alfalfa?

Prof. Zavitz: Yes, but if I were buying a fifty acre farm, I would not object if it were all down in alfalfa. I would want the ploughshare a little dull; I have seen the plough pull out roots three and four feet long. This brings fertility from the subsoil to the surface, and when the roots decay they furnish a large supply of valuable fertilizing material to the other crops which follow, and are almost sure to give very large yields.

The Chairman: I am sure you are all pleased with the address Prof. Zavitz has given this afternoon. The growing of alfalfa is a very important question, and there are a great many farmers who have been able to grow it successfully, and quite a few who have been unsuccessful.

LEGUME BACTERIA IN CONNECTION WITH ALFALFA GROWING.

PROF. S. F. EDWARDS, O.A.C., GUELPH.

It gives me a good deal of pleasure to meet with you again. I have been honored a number of times by being asked to meet with the Western Dairymen and talk on different topics, and it always gives me a great deal of pleasure to attend your session and meet with you in this way.

With regard to the topic on which Mr. Herns asked me to speak this afternoon, the relation of bacteria to alfalfa growing, Professor Zavitz has very well shown the advantages of growing alfalfa. There is one point which he mentioned two or three times in connection with alfalfa growing that is very important, and that is the inoculation of the seed or the ground, in order to have the proper bacteria present on the seed or in the soil. A word as to the bacteria and the function they perform: Some of you who have grown alfalfa have taken up the plants to examine the roots and you have seen the little nodules—"little bunches"—scattered here and there over the roots. If you have taken hold of the crown of the plant and pulled it up, you probably have not seen them, because the nodules would all be left in the ground, but if you take a spade and dig up the root carefully and break the earth away from it, you would probably find scattered over the roots little nodules or tubercles—little tumors, so to speak—particularly on the finer roots. If you take your knife and cut one of these tubercles open, you would see that the centre was pinkish in color. That centre portion is filled with bacteria. The function of the bacteria that form these nodules is to take the nitrogen from the air, that is present in the soil, and store that nitrogen up in the plant. Just exactly how they do it, we do not know. It has been known for centuries that alfalfa and the clovers were great soil enrichers. Everybody knows that when you plough under a crop of clover, you enrich the soil, and the reason clovers are such good soil enrichers is because of the fact that they are rich in nitrogen, and that nitrogen comes from the air through the agency of the bacteria that are in the nodules on the roots.

If there are no nodules on the roots, then all the nitrogen that your alfalfa or your clover has—and of course they must have some in order to make growth—must come from the soil. On a very rich soil, you may get satisfactory growth of some of the clovers, but the soil is not enriched and you do not add anything to your soil in that crop if the bacteria are not there. If they are there, they form the tubercles on the roots and take the nitrogen from the air, store it up in the plants and in that way aid the plant's growth.

In the laboratory, we can take these nodules from the roots and isolate or separate the appropriate bacteria, and grow them on culture media under artificial conditions. This we call a stock culture. After we have our stock culture, we can transfer from that culture to as many others as we like.

In order to supply the bacteria to the farmers, cultures are prepared and sent out to be put on the seed at the time of sowing. We have been engaged in this work at Guelph for eight seasons, sending the bacteria out in small bottles, enough in one package to inoculate a bushel of seed.

If the culture is mixed with the seed just before sowing, as the seed germinates the bacteria work their way into the fine rootlets, form the tubercles, take the nitrogen from the air and store it up in the plant as the growth proceeds.

Another method of inoculation is to use soil if you are in a neighborhood where alfalfa has been grown and there has been a good stand and the plants are satisfactory in every way. If you can get some of the soil from that field and spread it over the new field where you are going to sow alfalfa, at the rate of two or three hundred pounds of soil per acre, you will probably carry enough bacteria into that soil to inoculate it. The disadvantage of this method is that it requires more labor, and worse than that, unless you know the field from which you are getting the soil, you are very apt to introduce weed seeds or plant diseases.

With regard to the kind of seeds for which these cultures are prepared, cultures are distributed from the Bacteriological Laboratory for inoculating seed of alfalfa or lucerne, red clover, alsike clover and peas. Each kind of seed requires a different kind of culture. The cultures are for use on seed only, not on soil. For inoculating a field which has already been seeded, but on which the stand is unsatisfactory, the best method is to practice soil inoculation as described above. The cultures are good only for the season in which they are sent. There is only one size package, this being sufficient for sixty pounds of seed, though the entire culture may be used on less seed without harm. The cultures are sent by mail with complete directions for their use. A nominal charge of twenty-five cents for each culture is made to cover the expense of preparation and postage.

Now, as to results: As stated, this work began eight years ago, and the first year there were sent out 245 cultures. The work has increased each year, and last season and the season before, we sent out nearly 5,000 each year. Of course, we do not send to everybody who is growing alfalfa, but that is an indication of what is going on. Each year we have asked those who received the cultures to report to us in the fall as to whether they had any success, and in filing these reports as they came in, we find that the percentage of favorable results is about 62 per cent. That seems to be a sufficiently high percentage to warrant the carrying on of the work.

Q.—Don't you think a good coat of manure would do as well as the bacteria?

A.—Not unless it was manure from clover or alfalfa feeding.

Q.—How is it the roots of the alfalfa generally develop nodules in time?

A.—There probably are a few individual bacteria that will survive the drying on the seed. Our experiments established that, and of course these would increase. There might be a plant here and there in the field that would have nodules present, and as time goes on the bacteria will scatter.

Q.—How long will the bacteria live in the ground after it has been broken up?

A.—That would be hard to determine exactly. As there is usually little trouble in getting a stand on old fields, we believe the bacteria must live in the soil for a number of years.

Q.—Do you think the bacteria would be required on a farm that has grown alfalfa successfully for a number of years?

A.—Probably not. If you have a successful crop and an abundant growth, it shows that the bacteria must be there and in a case of that kind, if you will take up a plant and break the earth carefully away, you will find the nodules present on the rootlets. If the nodules are numerous, inoculation is not necessary.

Q.—My first field was better than any field afterwards; it may have been in the seed?

A.—Yes, it might have been. Did you examine the roots?

A.—No, I did not know much about the roots at that time.

Q.—Would the sowing of three or four pounds of alfalfa along with other seed have a tendency to inoculate the soil if that seed was not inoculated?

A.—Not unless you inoculated the alfalfa seed at the time of sowing.

Q.—If you inoculated the three or four pounds of seed, it would spread?

A.—Yes, but while you are inoculating the three or four pounds, you might as well inoculate the whole lot.

Q.—The seed would have to be treated in order to inoculate the soil?

A.—Yes, because there are very few bacteria on the dry seed. They are practically all killed out in the drying. There is one possible source of inoculation of alfalfa and that is sweet clover. Ordinarily the bacteria do not cross-inoculate, but bacteria from the common sweet clover will inoculate the alfalfa roots, and if your alfalfa field is alongside the road where sweet clover grows on the roadside, that would account for the inoculation and that is one method that has been recommended for inoculation, viz., to get some soil from a sweet clover patch and spread it over your alfalfa field.

Q.—Will the clover plant grow without these nodules?

A.—If there is plant food enough in the soil it will, but unless the soil is rich, the clover does not make as satisfactory growth as it would if the bacteria were there.

Q.—Where will we get this bacteria?

A.—As stated before, they can be secured by addressing the Bacteriological Laboratory, Ontario Agricultural College, Guelph.

THE WORK OF THE DAIRY RECORD CENTRES IN 1912.

CHAS. F. WHITLEY, DEPT. OF AGRICULTURE, OTTAWA.

I consider it a very great honor to be asked to speak to this Convention again on this subject. I have had the pleasure of speaking to your members upon it for several years in succession, and I think your directors have acted wisely in having it discussed again, because there is no more important matter to be brought before the farmers in this Dominion, particularly in this grand old Province of Ontario, than that of increasing the production per cow, and that is what cow testing aims at.

It is beginning to be recognized more generally that a cow is kept not simply to consume roughage and concentrates, but to produce milk and fat in abundance. Further, not only is a large production necessary from each, but a good profit must be made. That is the essence of modern business like dairying. The profit made depends largely on the cow's inherent ability to convert feed into those products economically. It is evident that if the production is sixty dollars' worth of milk or fat at a feed cost of fifty-five dollars, the net profit is only a bare five dollar bill, and is not a good return for her year's work. But fifty dollars' worth of product at a feed cost of thirty dollars makes another cow with her twenty dollars profit—just four times as profitable. Such study of dairy economics is only possible when dairy records are kept, and it is to this laudable end—a large profit from each cow—that the dairy division at Ottawa works through the recommendation of systematic cow testing, the bed-rock principle of dairy herd improvement. Our wide awake and progressive men appreciate it.

Unless the figures are actually before one, the variations in production found in the same herd seem almost incredible. For instance, in three Ontario herds the difference in yield between the best and the poorest cow, runs actually at 8,100, 9,100, 10,900 pounds of milk; the two extremes are 3,690 and 17,615 pounds.

This proves immediately that neither an occasional sample tested or pailful weighed, nor a hasty figuring of the herd's average yield can possibly give any measure of justice either to the abundant or to the economical producer, so that the knowledge requisite to building up a good herd has still to be sought. That knowledge can be found in dairy records.

The more the question of net profit per cow is looked into the more singular are the discoveries. A common showing in many districts is that one-third of the total net profit in a herd of eight or ten cows is made by only one—the best cow. That one good cow, earning $43 profit over a feed cost of $37 sometimes makes as much profit as to combine the profit and loss of the six poorest cows. Such a heavy burden is not fair play to her.

A cow giving $41 dollars' worth of milk at a feed cost of $37 makes only $4 profit; the cow with $43 profit noted above makes as much profit *as ten cows* of that kind. Such comparisons abundantly prove the necessity of studying each individual. Let us cease this unsatisfactory, unenlightening talking of the herd average. It is rabid Socialism, steamrolling to one dead level independent of strong individuality and ability.

The accompanying table illustrates the startling difference between average and individual profit or loss.

WHAT PROFIT PER COW DO YOU MAKE?

Herd No.	No. of Cows	Average Yield		Feed Cost	Average Profit
		Lbs. Milk	Lbs. Fat		
1	10	6,298	231	$40 00	$22 98
2	6	3,665	129	33 00	3 65
3	8	10,123	361	50 00	51 23

Poorest Cow			Best Cow		
Lbs. Milk	Lbs. Fat	Profit	Lbs. Milk	Lbs. Fat	Profit
4,345	167	$3 45	7,665	275	$36 65
2,176	78	11 24 (loss)	5,360	191	20 60
7,672	292	26 72	17,615	619	126 15

This photograph in figures shows three herds in strong contrast. The yield of milk in herd 3 is almost three times that of herd 2, but the average profit is *fourteen times* as great. That is despite the feed costing $17 per cow more.

Note the difference in the average yields of milk from thirty-six hundred to ten thousand pounds per cow. It would be just as sensible, perhaps more so, to say that the three herds average 6,700 pounds of milk, as to say that your own herd averages so and so. We must study individual performance. It is just a suicidal policy to average good and poor cows, blinding ourselves to the deadening influence of low yields and invisible profits.

The average profit in herd 2 is just one cent for each day in the year: but the individual returns vary between $11.24 *loss* and $20.60 profit. A consideration of averages without selection on records simply means stagnation.

The poorest cow in herd 2 is a four-year-old, type of a kind we ought to be without. The searchlight of record-keeping reveals them as dangerous to dairy navigation.

The poorest cow in herd 1 is a long way below par of the average profit of the herd. How frightfully unfair it is therefore to the best cow in this herd with $36.65 profit to have the poor one hauled up to the same level in a grossly misleading " average."

Among the best cows note the excellent record of 17,615 pounds of milk from this seven-year-old grade. Even at a feed cost of $50 her profit is $126.15; or compared with the $3.45 profit from the poorest in herd 1, *actually* 36 *times* as much. The great economy of the really good cow is here manifest.

Investigation at five centres last year showed 3,188 cows giving an average profit of only $13.28—no princely return for twelve months' work. It is such figures as these that the work of the dairy record centres aim to thrust upon the attention of our dairymen so that intelligent and rapid herd improvement may result. The recorders, these consulting dairy specialists, are within the daily beck and call of the inquiring dairyman in their respectvie districts, despite distance or weather, and absolutely free of charge. Not much wonder, surely, that there were fourteen such recorders last year in place of six the year before, and that more are being appointed. They bring to the farm in their capacity of dairy advisers a wealth of real encouragement, useful suggestion and practical help; each recorder proves the value of adding figuring to farming so that a simple record may assist materially in the dairyman's main endeavour to *make each cow pay.* That is the keynote thought in the chorus of cow testing.

Hence it is dawning on the indifferent patron and the sceptic, that *his* is the responsibility more than the cow's, *his* brain must make deductions from his record of figures, *his* intellect must plan and guide the building and development of the profitable dairy herd. That natural right since the beasts of the field were assigned to his control at creation's dawn, should be both his pleasure and strenuous aim to-day.

The recorder the man with a mission, shows that each individual cow has a mission; not simply existence at the expense of her unsuspecting owner, but the making of a handsome profit. Thus, farms and districts are now in the transition stage from general to special purpose animals. Record sheets and sample bottles are giving each cow a square deal, where before simply reigned mere guess work, palpably unjust to the aristocratic producer as well as to the habitual loafer. Fresh energy and determination are manifest as the benefits of a simple business proposition are taken to heart. Out of chaos and confusion of ideas, evolve order, system, satisfaction and profit.

The unmasking of some poor cows, shirkers of their responsibility, does not condemn dairying as a business, it has not led to gnawing misgiving of a dairyman as to his chosen vocation; but, on the contrary, such knowledge has fired a spirit of hopefulness and determination to improve. Really good cows, some where least suspected, have been found and their discovery has proved an incentive to even bigger things accomplished. Here we have real valuable education, intimate first-hand analysis of immediate surrounding conditions with the drawing out of the owner's best ideas of progress and attainment.

Our recorders found an average of nine cows kept per hundred acres of land. How many acres on your farm does it take to feed one cow? The profit might be increased immensely if the productive capacity of the land were so improved as to support more cows. On some farms visited only 150 pounds of milk were being produced per acre; while on others the production was as high as 1,750 pounds per acre.

The average cost of feed per hundred pounds of milk was found by our recorders in some cases to be as low as 54 cents for the average of the herd, while in others the average cost from unselected herds was as high as $1.37 per hundred. If individual cows were considered of course these prices would vary still more. No stronger proof could be possibly wanted for the absolute necessity of weeding out, after consulting their records, those cows whose milk costs too much to produce. In probably no other manufacturing industry would cost prices vary in such extraordinary degree. Nothing else but simple record keeping will detect the drones in the hive of dairy industry. Records thus prove themselves a valuable "first aid" to farmers injured by keeping poor cows; they assist to eradicate from the blood of the average man the poison of loose, indifferent ideas of dairying. They inoculate with the microbe of progress, and become serviceable dairy cultures, improvement "starters."

Glancing at all our records in Ontario for last year, the average yield of 3,387 cows was found to be 6,132 pounds of milk, 3.4 test, and 211 pounds of fat. To illuminate the difference in profit per cow, even in bulk like this I separated carefully the yields of the 300 poorest cows and the 300 best cows. This chart shows one or two startling facts. Please observe these are not imaginary, theoretical or experimental results; they are actual dairy records given us by the men who milk and feed the contrasted cows. They are indicative of the severe handicap of the average farmer with only average cows, and prove what a perfect food, as well as tonic, records may be to the average man, whose ideas on cow testing remain half starved and undeveloped.

CONTRAST OF THE POOREST AND BEST COWS.

Average Yield.	The 300 Poorest Cows.		The best 1/10th or the 300 Best Cows.	
3,387 Cows, Ontario.	Yield..................	$33 33	Yield..................	$104 33
6,132 lbs. Milk.	Feed	33 00	Feed	40 00
3.4 Test.				
211 lbs. Fat.	Profit..................	33	Profit	64 33

NOTE.—The 300 best cows gave more milk than the 300 poorest by 2,130,900 pounds.

It took scarcely one-third of the 3,387 cows to give one-half of the total yield of milk. Note that the feed cost of the poor cows has been placed at only $33, though our lowest average cost at a record centre was $33.21, which would cut even this small profit of 33 cents still lower.

Then look at this fact, that even charging the good cows with feed at $40 they made a profit of $64.33 or compared with their poorer sisters, 195 *times as much.**

If these 300 poorest cows had given as much milk as the 300 best cows there would have been an additional income from them of $21,309.00.

This knowledge should induce action, otherwise it is a golden opportunity wasted. Each year brings new benefits; to ignore them is to deprive one's self of the best that life offers. A man proves himself by his acceptance or rejection of the world's knowledge and progress. Hence the real dairyman should be found on the crest of each wave of advancement. Cow testing must commend itself to every thinking man; it is no fad, but has itself been tested and tried out in the hard crucible of actual farm experience.

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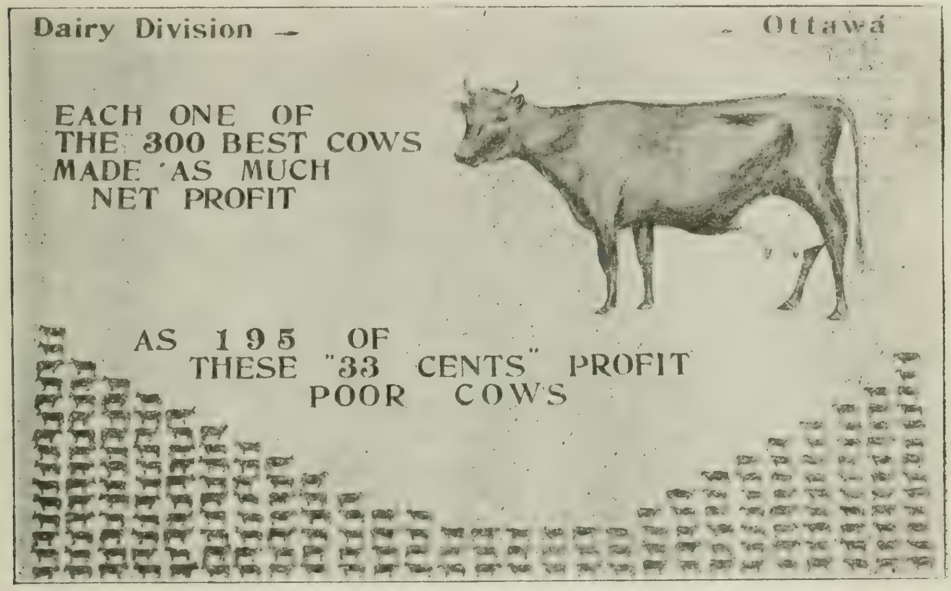
*Thus each one of the 300 "Best" Cows made as much net profit as 195 poor cows.

The more that cow testing is studied the brighter is the outlook. Correspondence and conversation with our dairymen show not only how eagerly some men thirst for knowledge, but how it has been acquired through a study of dairy records. As the cow impresses her needs on the mind of her owner, he reaches out for more information on the best dairy practice regarding suitable and better field crops, improved conditions in the stables, and better products. Records stimulate his best and constant endeavours and achieve excellent results the whole Dominion over. Some Ontario increases in yield directly traced to cow testing are tabulated here.


Dairy Division — — Ottawa
EACH ONE OF THE 300 BEST COWS MADE AS MUCH NET PROFIT
AS 195 OF THESE "33 CENTS" PROFIT POOR COWS

Some Ontario Increases After Three Years.

Herd at	No. of Cows.	Present Yield Lbs. Milk.	Increases per Cow.	
			Lbs. Milk.	Per Cent.
Winchester	14	8,314	1,027	14
Bongards	18	7,380	1,041	16
Brunner	11	7,396	1,719	30
Wooler	10	7,640	2,313	43
Kerwood	10	6,770	2,580	60
Bertie	4	6,326	2,560	68

An average increase easily obtained is 1,100 pounds of milk, 40 pounds of fat per cow.

Ontario has 1,044,000 cows. At only $10 each the increase might be over $10,000,000.

These are herds that records are building. Meditation on the benefits of cow testing has crystallized into action. Cents are sown and dollars reaped.

If all our dairy cows in Canada could be educated to yield only ten dollars worth of milk more than they do now, the extra revenue would be almost thirty millions of dollars.

Each herd may be considered to be giving a satisfactory present yield of milk as found in the second column, but the beauty of cow testing is that once radical improvement has commenced there is no curb placed on a man's ambitious ideas. Contented he may be now with 6,326 pounds of milk as an average yield per cow, but he is still in the running for a higher record.

Similarly these records of seven and eight thousand pounds may be expected, in a year or two, to be over-shadowed by the substantial figures of 10,000 pounds per cow.

Such percentage increases as 30.43 and 60 are worthy of more than a passing reference. They should arrest the attention of every business man, indicating as they do so strongly no panning out of distant mines or slumps in real estate, but almost unsuspected possibilities in undeveloped resources on old Ontario farms. Few amongst our merchants realize a 60 per cent. increase of output in three years, yet such tangible results, and even greater ones, are obtained on scores of farms. In addition to this it is well to bear in mind that as expenses do not increase in anything like the same ratio, the net profit per cow bounds up in remarkable degree.

Taking the Kerwood herd, for instance. The original yield of milk was 4,390 pounds; at a feed cost of $40 the profit was $3.90. Even allowing $45 worth of feed now to produce the present yield 6,770 pounds of milk the net profit is $22.70. Thus while the increase in milk yield is 60 per cent. the increase in profit is 482 *per cent.* Such figures would not be indifferently received by any mercantile firm, and should appeal forcibly to every philanthropic dairyman who is at present boarding the "33 cent cow" referred to above.

ADDRESSES OF WELCOME.

Addresses of welcome were delivered by Mayor Macbeth of Woodstock and Mr. Fidler, President of the Board of Trade.

WHAT IS CHEESE?

Prof. R. Harcourt, O.A.C., Guelph.

Cheese is believed to be one of the oldest dairy products, and possibly the first form in which milk was preserved for future use. It appears to have been known during the time of King David, 1,000 years before Christ. The ancient Greeks speak of it, and Cæsar tells of the preparation of cheese among the people of Central Europe. These historical facts are interesting in that they show that cheese, like bread and milk, was one of the earlier foods of man, and that its preparation and use has been continued down through the ages.

Like many other of our common foods, cheese is very complex in its composition, and, while we are familiar with its general character and know something about the amount of protein and fat it contains, we know very little about the make-up of these materials as they occur in well ripened cheese. Until recent years cheese-making has not been classed as a fermentation industry, but we now know that it is one of the most complex of these industries. In the making of wine and beer the desired changes are brought about by a single form of life, the true yeast, and in the preparation of any desired type of product attention need be directed, as far as the casual organism is concerned, only to insure the presence of the particular variety of yeast that has been found by experience to give the desired results and to prevent the action of any harmful forms. On the other hand, the cheesemaker has to deal with a complex material, milk, that for various reasons cannot be sterilized, and is peculiarly susceptible to contamination. To this is added rennet, also complex in its nature, and then, by means of salt and by controlling temperatures during the making and ripening periods, the matured product is formed. Naturally, when there is a variation in the controlling factors, that is, in the amount of salt or in temperature, there will be differences in the nature of the product, and these differences not only affect the texture, but more especially the flavor and aroma. Apparently, these differences are caused by the nature of the micro-organisms which are able to grow best under the existing conditions. Thus it will be seen why from three such common substances as milk, salt and rennet it is possible to make such an innumerable variety of cheese as is found on the market to-day; and, furthermore, why it is absolutely necessary that the cheesemaker have full control of the conditions under which the ripening takes place if he is to get a uniform product.

But it is not to this aspect of cheese that I want to draw your attention, but, rather, to its food value. Cheeses are of two classes: those which are mild in flavor and those which are seasoned or ripened in such a way that they are highly flavored. The latter, like almost all highly flavored foods, are commonly used to season dishes made of ingredients without much distinctive flavor, or else are used in small quantities at a time to give palatability to a dish or a meal., The mild flavored cheese are the ones which are usually selected for eating in quantity, and are the ones which may be most appropriately selected when cheese is to be used as a substitute for meat. Our common mild flavored cheese is the Cheddar or factory cheese, which is made in such large quantities throughout this province and other provinces as to be commonly called Canadian cheese.

From the standpoint of the housekeepers, cheese is of importance because of its high nutritive value, particularly its high percentage of protein or muscle-forming materials, because of the ease with which it can be kept and prepared for the table, and because of its appetizing flavor and of the great variety of ways in which it can be served.

To show its high nutritive value it is only necessary to point out that one pound of good Canadian cheese contains nearly all the protein and fat in one gallon of milk. Approximately, it is made up of one-third water, one-third fat, one-quarter protein, and smaller quantities of ash, or bone forming materials, salt, etc. Beef contains over 50 per cent. of water, and the leaner it is the higher will be the water content. Thus, beef has a much lower nutritive value than cheese, and the same statement holds good with practically all forms of meats, and more especially with the expensive cuts and the cured and cooked meats.

Unfortunately, there is rather a widespread belief that cheese should be used chiefly in small quantities as a condiment, and that in large quantities it is likely to produce physiological disturbances. The idea has been advanced that the infiltration of casein with fat renders it difficult of digestion, since the fat hinders the access of the digestive juices to the casein. Such reasoning offers a probable ground for the belief that cheese should be thoroughly chewed before it is swallowed.

The disagreeable effects, such as a burning sensation and other symptoms of indigestion which certain kinds of cheese sometime produce in the stomach, is explained by Hutchison* as being possibly due to the small quantity of free fatty acid that is produced during the ripening process. Such acids are irritating. If this be the true explanation, then it is evident that such irritating effects are more likely to occur from eating the strong cheeses used as condiments than from the milder cheese used as a staple article of diet.

Because of these opinions, extensive experiments have been carried out by the United States Department of Agriculture† in co-operation with the Wesleyan University, Middletown, Conn., and with the Minnesota State Experiment Station, to ascertain by actual trials what proportion of the cheese was digested and what effect it had in the system when eaten in large quantities.

The work at Middletown was planned to include green and ripe cheese. The cheese was made by the regular Cheddar process and would be similar to a very large part of the cheese consumed in this country. The ripening was carried on under different conditions. One lot was ripened under factory conditions where the temperature varied from 50 degrees to 75 degrees F. Two lots were stored immediately after making and one was kept at 32 degrees F. and the other at 40 degrees F. Another lot was held in the factory curing room for two weeks and then placed at a temperature of 40 degrees F. All these methods of controlling the ripening process were carried out with cheese made with three ounces of rennet to the thousand pounds of milk, and with six ounces to the thousand pounds of milk.

The subjects of these experiments were students of the university. The diet consisted of whole wheat bread, bananas and cheese. Of the latter substances from 450 to 600 grams were eaten in the three days of the experiment, or about one-third to nearly one-half pound per day. The number of experiments completed was 184.

Without going into the details of the results, it may be stated that there was found to be little or no difference in the digestibility of the cheese at different stages of ripening. The perfectly green curd was evidently as digestible, and, so far as nutritive value was concerned, was as good as the same cheese at any stage of ripening. Furthermore, the cheese was highly digestible and, though it was eaten in comparatively large quantities, it was well assimilated. The record of the health of each individual shows that there was little or no digestive troubles and that the green cheese caused no more trouble in this way than the ripened article.

The Minnesota experiments were planned to study the digestibility of older cheese than had been used in the Connecticut experiments, also the digestibility of other varieties of cheese, such as Roquefort, Swiss, Camembert and Cottage cheeses, as well as the so-called condimental value of some of the more highly flavored varieties. Bread, oranges and cheese formed the diet in these experiments.

In general, the results confirmed the previous work and showed that all kinds of cheese, even the very high-flavored and so-called condimental cheeses, have a high food value. But the so-called condimental value of cheese when eaten in small quantities as a stimulus to the digestion of other foods was not demonstrated.

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* "Food and the Principles of Dietetics."

† "The Digestibility of Cheese." Circular No. 166, Bureau of Animal Industry, U.S.A.

These extended experiments show that on the average 95 per cent. of the fat, and over 95 per cent. of the protein of the cheese, was digested, and more than 90 per cent. of the total energy is available for the body. They also show that cheese may serve as the principal source of protein and fuel in the body for a long period of time.

A comparison of the food value of cheese with that of the other highly nitrogenous materials is of interest at this time. No kind of meat, excepting dried beef, carries such a large percentage of protein as cheese. Fresh beef as purchased has, weight for weight, a little more than half the food value of cheese in either protein or fat, and the same is true of practically all other meats. Bacon or fat pork are exceptions, but their food value is mostly in the fat, which can be and is replaced to a great extent by the carbohydrate of vegetables at a much less cost and sometimes, perhaps, with benefit to the health of the consumer. Or to put the matter another way, one pound of cheese has nearly the same food value as two pounds of fresh beef, or any other fresh meat as food; it is worth as much or more than a pound of ham and is more digestible, and it is equal to two pounds of eggs or three pounds of fish.

To place the matter in still another way, let us compare some of the more common foods on the basis of the weight of protein, fat and calories of heat that can be purchased for one dollar.

PROTEIN, FAT, CARBOHYDRATES AND FUEL VALUE OF A DOLLAR'S WORTH OF EACH FOOD

——	Price, per lb.	Refuse	Protein lbs.	Fat lbs.	Carbohydrates lbs.	Fuel value cals.
Milk	6c. quart	....	1.38	1.69	2.21	13,809
"	8c. "	....	1.04	1.27	1.66	10,402
Skimmed milk	10c. gallon	....	3.40	0.30	5.10	17,070
Butter milk	10c. "	....	3.00	0.50	4.80	17,632
Butter	25c. pound	....	0.04	3.40	....	14,422
Cheese	17c. "	....	1.63	2.16	.24	12,593
Beef, flank	8c. "	10.2	2.12	2.37	....	13,944
" sirloin	18c. "	12.8	0.92	0.90	....	5,509
Veal cutlets	15c. "	3.4	1.34	0.50	....	4,612
Mutton chops	16c. "	16.0	0.84	1.80	....	9,158
Lamb, hind quarters	18c. "	15.7	0.92	0.90	....	5,509
Ham, smoked	18c. "	13.6	0.79	1.85	....	9,276
" smoked and cooked	30c. "	....	0.67	0.75	....	4,405
Eggs	25c. dozen	11.2	0.71	0.56	....	3,853
White bread	2½ lbs. 10c.	....	2.10	0.50	12.2	28,710
Rolled oats	7 " 25c.	....	3.50	1.90	20.0	51,730
Farinas	6 " 25c.	....	2.30	0.24	18.7	40,070
Potatoes	90c. bag	20.0	2.18	0.10	15.6	33,492
Flour, fall wheat	2c. pound	....	4.75	0.04	38.0	81,087
" "	2½c. "	....	3.80	0.03	30.4	64,868

In view of the foregoing comparison of food values it is a matter of surprise that there is not a greater demand for cheese. Estimates made by the United States Department of Agriculture show that the people of that country use about 175 pounds of meat annually per capita, besides fish and poultry, while the annual consumption of cheese is only about 4 pounds per capita. It is probable that if we had similar data gathered in this country the results would be about the same. Even granted that fresh meats are more palatable to most people, some other explanation must be found for this wide difference in the quantity of the two products eaten. A great proportion of the people of this country are able to buy plenty of wholesome food, but they cannot afford to discriminate against a cheap, palatable and wholesome food in favor of a higher priced food.

The results of the experiments just cited and the experience of people of the European countries all show that we cannot discriminate against cheese because of any suspicion that it is not a healthful food, and we would do well to take a lesson from the people of the older countries and use greater quantities of cheese in our diet.

THE CHAIRMAN: Mr. Herns, the Secretary-Treasurer of our Association, received a telegram this evening from the Hon. Mr. Burrell, the Minister of Agriculture for the Dominion of Canada, saying that he deeply regretted that his parliamentary duties absolutely prohibited him leaving Ottawa just now, and that he had been looking forward to meeting the representative men of Western Ontario and becoming better acquainted with those who have done so much to promote the welfare of the great agricultural industry; that we have his best wishes for a successful Convention, and he hopes that the result of our Association's efforts will be even greater than in the past. We deeply regret his absence because we looked forward to having him at this Convention.

ADDRESS.

G. A. PUTNAM, B.S.A., DIRECTOR OF DAIRYING, TORONTO.

A very conservative estimate of the value of the dairy products produced in Ontario during 1912 is $40,000,000; some have placed it as high as $45,000,000. That in itself will give you some indication of the magnitude of the work you are engaged in. As Prof. Harcourt has told you, the consumption of milk, cheese, and butter is bound to increase, and high prices are likely to continue. When we study the statistics of the annual output of beef animals, sheep, hogs, and other meat producing animals, and take account of the breeding stock, we are forced to the conclusion that there is no immediate likelihood of the price of meats being lowered. We must also consider the fact that the present prices of dairy products are, when compared upon a food value basis, much cheaper than the meats. We cannot, therefore, come to any other conclusion than that dairy products will continue to be consumed in larger quantities, even though the people may have to pay higher prices; and I am not sure but that they will have to pay higher prices especially for milk and cream.

Dairying is not only a revenue producer, but an invigorator of the soil. In observing the conditions throughout the Province, we must recognize the fact that where men are following dairying to any extent, there you find the high priced land. The outlook in the dairy industry is very bright, and there is no question, if the present methods are continued, dairy products will maintain the high lever in quality which has characterized them for so many years.

While it may be that the cheese shipped from Eastern Ontario have been sent out too green and have had the effect of lessening the comparative prominence of Canadian goods, still, we must remember that we have a most capable band of cheesemakers in the Province, and we have a force behind this business which will maintain and increase the high quality and uniformity which had characterized our goods. At the Eastern Convention, it was pressed upon the Commission that has been appointed by the Dominion Department of Agriculture that there was a necessity for passing a law which will make it compulsory for the manufacturer to keep the cheese on the shelves at least ten days, and I think if we can only get that law, the future of the cheese branch of dairying will be made more secure.

We have exemplified in the dairy industry a feature which I think is possibly the most important in connection with the agriculture of this or any other country, and that is the matter of *co-operation.* The present status of the dairy industry is due to the fact that you have from the first followed largely a system of co-operation, requiring the farmers in each locality to work together and in harmony to make the industry a success. Then we have our Dairymen's Associations which have done a great service for the dairy industry, and they have been a stimulus to other organizations. The farmers following other lines many years ago, watched the work of these dairy associations and said, "We must have organizations to look after our interests"; and so while the dairy associations have helped the dairy industry, they have also been a stimulus in the organization of other associations which have to do with the farm and farmers. Then we have our Dairy Schools, and the attendance at the Dairy Schools has been very encouraging this year. Then we have our staff of instructors, and you all know the work these men are doing.

The Dominion Department of Agriculture looks as well after the interests of dairying along the lines under its direction as any other branch of agriculture.

We believe that the farmers of Ontario have been well advised for a great many years along agricultural lines, and if they have failed to make the progress in their business which they might have, it is not because they have not had sufficient advice. Speaking generally, this advice has been of a practical nature, and if occasionally it has not been altogether practical, we have always welcomed from the farmers criticism as to what we have been doing. The meeting of the Dairymen's Associations, Farmers' Institutes and other gatherings of farmers will do the most good to the greatest number only when you give an opportunity for free and full discussion. The farmers have been greatly helped by bulletins and reports that have been sent to them. We have in this Province a splendid agricultural press, and I think we are very fortunate in having at the head of these various agricultural papers such as earnest, capable lot of contributors and editors. The agricultural press has done a grand service to the farmers of this Province, and when I go into a farmer's home and find he is not taking one or more of the agricultural papers, I conclude that he is not of the progressive sort. Even if the prices for these were double what they are, a farmer could well afford to take one or more of the agricultural papers. To a greater extent than we can in the Department, they present material at an opportune time. We have been earnest in the work of instructing the farmers and are deeply indebted to the large number of farmers who have assisted in making this work possible, because without the co-operation of these men, who have sacrificed time and money to make the work a success, we could not have carried it on.

We have been advising the farmers for years as to the wisdom of sitting down and calculating the profits which they have made from the farms, not only the gross returns but the returns from the various activities; how much they make out of their herds; out of their alfalfa field, or any other crop they are growing. We thought it well to take some of this advice ourselves, and last spring decided to make a dairy census of a small section of the Province.

(A brief report upon this work will be found at the end of this volume; so only a portion of the speaker's remarks are here given.)

We found that out of 272 farmers in North Dorchester, 192 were cooling their milk in tanks of water, and 22 were using ice and nearly 50 of them have no provision whatever for cooling the milk. The cheesemakers know very well that if you get fifty lots of milk at a factory and put them all into one vat, that the vat of milk is no better than the poorest can, and I appeal to the makers to do their part in inducing, as far as they can, the men who are not yet following proper methods to do so. 170 of these farmers are sending milk to the factory and 19 to the city, 37 to the creameries and 22 are making butter at home, 18 are sending to the condenser and 6 are breeding calves. Milk and cream for the city trade is becoming more and more a feature of the dairy business in Ontario.

Let us consider the 50 best herds in this township of North Dorchester. The highest return was $111 per cow and there were 18 cows in the herd. They were selling the milk for city trade and generally speaking the man who is furnishing milk for city trade gets the highest cash price, but of course is getting nothing by way of by-products. He has to take the best of care of his milk, and it has to contain a fair percentage of butter fat, and he has to furnish a fairly uniform supply throughout the year; so he should get higher prices than the factory patron.

Then there were four herds supplying to city trade which averaged over $100 per cow, and there were sixty cows represented in these four herds. In the fifty best herds, eleven were supplying city trade and the average was $86.20; of thirteen sending to the condenser, one averaged $100 and there were fifteen cows in the herd. The whole thirteen herds, two hundred and forty-three cows, averaged $75.40; and one herd of forty cows averaged $75.

Eighteen of the fifty good herds supplied milk to the cheese factories and one gave a return of over $80 per cow, fourteen cows in the herd. Of two hundred and fifty-four cows representing the eighteen herds, the average was $57.50. Eight herds out of the fifty sent cream to the creamery, and the average for the one hundred and fifteen cows was $54.70. We must of course make an allowance for the skimmed milk which is very valuable. The man who is keeping the skimmed milk at home and feeding it to the stock cannot often be induced to change from that system. Then the factory man has an advantage as compared with those supplying city trade or condensers, in that he has the whey for feeding purposes and the returns for hogs among factory patrons is no small item.

Forty-nine out of the fifty very best farms are growing corn; twenty-nine of these forty-nine farmers who grow corn have silos and grow fourteen acres of corn each, and those who did not have silos only grew six and a half acres each. The twenty-nine men with silos had seventeen cows each and the men without silos had thirteen cows each. That is a difference of four cows per 100 acres; and if by putting up a silo you can keep four more cows on one hundred acres, you ought to build a silo. Only thirteen farmers out of the two hundred and seventy-two are growing alfalfa and thirty-four are growing roots.

It is gratifying to see a number of ladies in the audience, and I would like to say a few words regarding that feature of work in which I am specially interested, the Women's Institutes of Ontario. For a great many years, we have given prominence to the education of the farmer and to a large extent overlooked the need of the women in the home. It is strange that we should have done so, because we all recognize that the work in the farm home is of as much importance as any other department of the farm. Many farmers who are given credit for great success, should pass that credit on to their wives; and it may be that some farmers who would otherwise have been successful have found that the mismanagement and lack of knowledge of household matters on the part of the women folk has been a great handicap. For a number of years we have been educating the boys and men along agricultural lines at the agricultural colleges and by the holding of meetings and conventions. Latterly the Department has located throughout the Province district representatives, each having an office in some central town, with an agricultural library and prepared to assist farmers in various ways. If the farmer wants information regarding seed grain or fruit growing, drainage, or any other branch of farming, these men are prepared to give them the information. We have during recent years assisted the women along Domestic Science, Social, Community improvement, and many other lines which are known to most of you. I shall not dwell upon these, but merely mention a new feature of work in connection with the Women's Institutes; I refer to demonstration lecture courses in home-nursing, cooking and sewing. We are able to give systematic instruction embracing twelve to fifteen lectures on each of the lines mentioned to groups of women in our rural districts. Branches of the Institute conveniently located for the travelling of the instructor are required to form class of at least 25. One day is spent at each place every week for a period of two to three and a half months. The instruction is highly appreciated. and will, we believe, develop into what will prove one of the most effective and highly appreciated feature of Departmental work.

A NATIONAL DAIRY SHOW.

Mr. Edmund L. Westcott, presented for the consideration of the convention the possibility of organizing a National Dairy Show. He referred to the success attending the national dairy show held in Chicago annually, where they have everything of interest for the dairy farmer, the breeder, the creamery man, the cheese man, the city dairy man, and the ice-cream maker. Dairy machinery of every kind and all the important supply houses are represented. He stated that supply men were very anxious that the Eastern and Western Dairymen's Associations should join hands and lend their assistance in encouraging the dairymen in having a Dairy Show in Canada, so that all the various interests could be drawn to one central point.

He expressed the hope that before the Convention was over the Board of Directors would take the matter up, and that the ball would be started rolling in the direction of a Dairy Show for Canada.

The Chairman: Last evening we were to have been honored by the presence of the Hon. James S. Duff, Minister of Agriculture for the Province of Ontario, but he was unable to be here on account of a railway accident near Hamilton. He telegraphed to that effect, but the telegram was not delivered until this morning.

PRIZE WINNERS IN CHEESE AND BUTTER COMPETITIONS, 1913.

Announced by Mr. Frank Herns.

	Score.
September White Cheese—	
1.—T. O'Flynn, Tavistock	96.99
2.—J. K. Brown, Ethel (won on flavor)	96.82
3.—C. J. Donnelly, Scottsville	96.82
4.—J. Cuthbertson, Sebringville	96.48
5.—R. E. Hastings, Newry	96.33
September Colored Cheese—	
1.—Roy Hastings, Newry	97.17
2.—W. A. Bell, Pine River (won on flavor)	96.32
3.—J. Cuthbertson, Sebringville	96.32
4.—Jno. Francis, South Middleton (won on flavor)	96.16
5.—J. K. Brown, Ethel	96.16
October White Cheese—	
1.—J. T. Donnelly, Sparta	96.65
2.—H. E. Donnelly, Straffordville	96.49
3.—J. K. Brown, Ethel	96.48
4.—J. Cuthbertson, Sebringville	96.32
5.—C. J. Donnelly, Scottsville	96.16
October Colored Cheese—	
1.—H. Youn, Molesworth	96.65
2.—R. Myrick, Springford (tie)	96.32
3.—R. E. Hastings, Newry (tie)	96.32
4.—J. F. Koch, Gowanstown (tie)	96.32
5.—T. O'Flynn, Tavistock	96.16
Winter Fifty-six-pound Box Creamery Butter—	
1.—E. M. Johnston, Innerkip	96.49
2.—H. W. Patrick, St. Thomas	96.07
3.—R. C. Bothwell, Hickson	95.66
4.—R. Johnston, Bright	95.49
5.—J. Cuthbertson, Sebringville	94.76
Twenty One-pound Creamery Prints—	
1.—E. M. Johnston, Innerkip	95.33
2.—Wm. Waddell, Kerwood	95.15
3.—R. Johnston, Bright	94.65
4.—T. O'Flynn, Tavistock (won on flavor)	94.49
5.—H. W. Patrick, St. Thomas	94.49
Fifty-six-pound Box Creamery Butter—	
1.—W. G. Medd, Winchelsea	95.66
2.—Wm. Waddell, Kerwood	95.15
3.—J. H. Scott, Exeter	94.99
4.—I. C. Goodhand, Corbett	94.81
5.—H. W. Patrick, St. Thomas	94.65
Two September Stilton Cheese (Ten pounds)—	
1.—C. A. Barber, Woodstock	96.32
2.—P. Callan, Woodstock (won on flavor)	95.82
3.—H. W. Hamilton, Monkton	95.82
Two September Flat Cheese—	
1.—P. Callan, Woodstock	95.82
2.—C. J. Donnelly, Scottsville	95.66
3.—H. Youn, Molesworth	95.50

Special Prizes.

By the Heller & Merz Co., 22 Cliff Street, New York—C. Richardson & Co., St. Mary's, Ont., Canadian Agents for Alderney Butter Color: $10.00 in cash—To the Buttermaker securing the highest score in Class III. or IV., colored with Alderney Butter Color. E. M. Johnston, Innerkip.

$5.00 in cash—To the Buttermaker securing the second highest score on butter in Class III. or IV., colored with Alderney Butter Color. H. W. Patrick, St. Thomas.

By the R. M. Ballantyne, Limited, Stratford, Ont., for D. H. Burrell & Co., Little Falls, N.Y., manufacturers of Chr. Hansen's Rennet Extract and Color: One case of Hansen's Rennet Extract—To the Cheesemaker securing the highest score on September White Cheese, Class I., Sec. 1. T. O'Flynn, Tavistock.

One case of Hansen's Cheese Color—To the Cheesemaker securing the highest score on October Colored Cheese, Class II., Sec. 2. H. Youn, Molesworth.

By C. H. Slawson & Co., Ingersoll, for D. H. Burrell & Co., Little Falls, N.Y., manufacturers of Chr. Hansen's Rennet Extract and Color: One case of Hansen's Cheese Color—To the Cheesemaker securing the highest score on September Colored Cheese, Class I., Sec. 2. W. A. Bell, Pine River.

One case of Hansen's Rennet Extract—To the Cheesemaker securing the highest score on October White Cheese, Class II., Sec. 1. J. T. Donnelly, Sparta.

Note.—All cheese competing for the special prizes offered by the R. M. Ballantyne, Limited, and C. H. Slawson & Co. must be made with Hansen's Extract and Color. No special cheese required.

By the J. B. Ford Co., Wyandotte, Mich., manufacturers of Dairymen's Cleaner and Cleanser: One Casserole or Baking Dish, best Guernsey Ware, Set on Silver Stand—To the Cheesemaker who is a regular user of Wyandotte Dairymen's Cleaner and Cleanser having the best finished and most stylish looking cheese on exhibition. C. J. Donnelly, Scottsville.

One Casserole or Baking Dish, Best Guernsey Ware, set on Silver Stand—To the Butter-maker who is a regular user of Wyandotte Dairymen's Cleaner and Cleanser having the neatest and most attractive exhibit of butter. Jno. Cuthbertson, Sebringville.

Note.— All exhibits (except Stilton and flat cheese) are eligible for these two special prizes.

By the Canadian Salt Co., Windsor, Ont., E. G. Henderson, Manager: $15.00 in cash—To the Cheesemaker securing the highest score on cheese (except flats and Stiltons) exhibited in any class. Roy Hastings, Newry.

$10.00 in cash—To the Cheesemaker securing the second highest score on cheese (except flats and Stiltons) exhibited in any class. T. O'Flynn, Tavistock.

$15.00 in cash—To the Buttermaker securing the highest score on butter exhibited in any class. E. M. Johnston, Innerkip.

$10.00 in cash—To the Buttermaker securing the second highest score on butter exhibited in any class. H. W. Patrick, St. Thomas.

By the Western Salt Co., Mooretown, Ont., N. A. Leach, Manager: One barrel Purity Cheese Salt—To the Cheesemaker securing the highest score on September White Cheese, Class I., Sec. 1. T. O'Flynn, Tavistock.

One barrel Purity Cheese Salt—To the Cheesemaker securing the highest score on October Colored Cheese, Class II., Sec. 2. H. Youn, Innerkip.

One barrel Purity Dairy Salt—To the Buttermaker securing the highest score on fifty-six-pound box Creamery Butter, Class III. and IV., Sec. 1. E. M. Johnston, Innerkip.

One barrel Purity Dairy Salt—To the Buttermaker securing the highest score on twenty one-pound Creamery Prints, Class III., Sec. 2. E. M. Johnston, Innerkip.

Note.—No special butter or cheese required.

By the Marshall Dairy Laboratory, Madison, Wis.—Robt. Johnson, Woodstock, Ont., Canadian Agent for Marshall's Rennet and Color: A handsome Gold Watch, value $25.00—To the Cheesemaker securing the highest score on cheese (except flats and Stiltons) made with Marshall's Rennet. Tie—R. Myrick, D. Menzies.

Note.—No special cheese required.

By the R. M. Ballantyne, Limited, Stratford, Ontario, for the manufacturer of Ballantyne's Special Rennet Extract: A handsome Gold Watch, value $25.00—To the Cheesemaker who is a continual user of Ballantyne's Special Rennet securing the highest score on September White or October White Cheese, Class I., Sec. 1, or Class II., Sec. 1. Made with Ballantyne's Special Rennet. J. K. Brown, Ethel.

By the R. M. Ballantyne, Limited, Stratford, Ontario, for the manufacturer of Ballantyne's Special Rennet Extract: A handsome Gold Watch, value $25.00—To the Cheesemaker who is a continual user of Balantyne's Special Rennet securing the highest score on September Colored or October Colored Cheese, Class I., Sec. 2, or Class II., Sec. 2. Made with Ballantyne's Special Rennet. R. Hastings, Newry.

Note.—No special cheese required.

By the DeLaval Dairy Supply Company, Limited, Montreal, Canada: A Silver Cup—To the Buttermaker securing the highest score on butter made during the month of October from collected Cream, Class IV., Section 1. W. G. Medd, Winchelsea.

Note.—No special butter required.

By the Imperial Bank of Canada: A Silver Cup—To become the property of the Cheesemaker securing the highest total score, three times, or twice in succession, on two cheese; one cheese either white or colored, exhibited in Class I., and one cheese either white or colored, exhibited in Class II. In awarding this cup the scores of the two cheese securing the highest score in Classes I. and II. (belonging to the same exhibitor) will be added. In case of a tie, settlement is to be left with the judges. Won in 1910 by J. E. Stedelbauer; won in 1911 by R. A. Thompson; won in 1912 by D. Menzies; won in 1913 by R. E. Hastings, Newry.

Note.—No special cheese required.

Cheese Buyer's Trophy: Challenge Cup, valued at $150—To become the property of the exhibitor of cheese (except flat and Stiltons) at the Winter Dairy Exhibition who shall receive the highest score three times, or twice in succession: Won in 1903 by Frank Boyes; won in 1904 by R. H. Green; won in 1905 by O. Schwietzefr; won in 1906 by J. Patton; won in 1907 by J. E. Stedelbauer; won in 1908 by Mary Morrison; won in 1909 by J. T. Donnelly; won in 1910 by Mary Morrison; won in 1911 by B. F. Howes; won in 1912 by D. Menzies; won in 1913 by R. E. Hastings, Newry.

Note.—Cheese without a bandage will be considered unfinished, and shall be scored off for finish accordingly.

Cheese on exhibition may be paraffined.

All one-pound print butter on exhibition must be wrapped in plain wrappers.

Mr. Herns: Instead of having the cheese scored on the original entry number, we put new entry numbers over the original entry numbers, so that all the cheese and butter were scored on entirely different numbers from the original entries. When you get the score cards back you will find a different number on the card. I mention this so that you will know there has been no mistake in connection with the scoring and awarding of the prizes.

REPORT OF CHIEF DAIRY INSTRUCTOR AND SANITARY INSPECTOR WESTERN ONTARIO, 1912.

F. Herns, London.

I beg to present my Sixth Annual Report as Chief Dairy Instructor and Sanitary Inspector. During the past season, six cheese and two creamery instructors were employed, and from July to November the services of a special instructor were engaged to visit creamery patrons. There were two changes in the staff—Mr. R. A. Thompson, of Atwood, and Mr. Mack Robertson, of Guelph, replacing Mr. James R. Burgess and Mr. Fred Dean. The Instructors attended the usual Short Course at the O. A. C., and the lectures given by the College Staff during this course were much appreciated. The Instructors also had an opportunity at that time of discussing uniform methods of work.

Cheese Instruction Report.

Quality of Cheese.—The period of extreme warm weather last season was not long. A greater number of patrons cooled the milk and the majority of makers did good work, therefore the quality of the cheese was on the whole, perhaps, superior to other years. There is, however, still room for improvement.

Quantity of Cheese, 1911.—Western Ontario produced, in 1911, 27,600,982 lbs. of cheese. These figures were with few exceptions taken from the factory books. The figures for 1912 cannot be obtained until after the annual cheese meetings.

Average Yield and Price, 1911.—The average yield (lbs. of milk to make a lb. of cheese) in 1911 was 11.14. The average net price per lb. of cheese to patrons for 1911 was 12.55 cents.

Instructor and Group.	Factories visited.	Combined Cheese and Butter.	Butter only.	Casein.	Powder factory.	No. of Patrons.	No. of full day visits.	No. of call visits.	No. of patrons visited.	No. of curd tests.	No. of samples tainted.	No. of lactometer tests.	No. of Babcock tests for adulteration.	No. of new cans bought.	Factories making "Whey Butter."	Factories paying by test.	Factories having cool curing room.	Factories pasteurizing whey.	Whey fed at factory.	Average per cent fat in milk for season.	Average per cent fat lost in whey.	Estimated expenditure for improvements.
LISTOWEL— R. A. Thompson	35	1	....	....	....	2,714	105	49	49	44	36	7,215	204	120	....	5	3	18	4	3.4	.21	$865 00
STRATFORD— Geo. M. McKenzie........	30	....	....	1	....	2,439	93	55	113	80	34	6,001	221	295	....	11	7	19	3	3.4	.22	2,815 00
INGERSOLL and WOODSTOCK A. E. Tracey...........	33	3	....	1	....	1,834	82	92	66	63	35	3,836	449	404	2	4	2	20	....	3.4	.23	2,141 00
SIMCOE— Geo. Travis	31	....	2	1	1	2,025 *977	64 33	89 27	54 16	17	8	4,699	523	229	3	1 10	1	6	....	3.45	.21	†7,000 00 1,500 00
BRANTFORD— R. H. Green	24	2	8	2	....	1,322 *35	75	57	54	....	....	4,802	48	111	....	1	1	8	....	3.4	.2	645 00
LONDON— T. F. Boyes	32	5	1	4	....	2,023	95	67	99	27	25	4,116	252	243	....	5	....	9	1	3.4	.2	2,675 00
Total..................	185	11	11	9	1	13,367	547	436	451	231	134	30,669	1,697	1,402	5	37	‡14	80	8	3.42	.21	17,641 00

*Creamery Patrons.
†New Cheese Factories.
‡Five additional factories have rooms insulated.

The Milk Supply.—12,367 patrons furnished milk to the cheese factories. The estimated average per cent. of fat in the milk for the season is 3.42 per cent.

Loss in Whey.—The estimated loss of fat in the whey for the season was .21 per cent.

Factory Visits.—185 factories were visited by the Cheese Instructors, 11 of which factories made both cheese and butter and 11 butter only. Nine factories shipped cream and made casein. The factories received 547 full day visits and 436 call visits. Total of 983 visits.

Whey Butter.—Five factories made whey butter.

Patrons Visited.—541 patrons were visited. 1,402 rusty cans were discarded.

Cool Curing Room.—Fourteen factories have ice cool curing rooms, and five sufficient insulation to control the temperature.

Pay by Test.—Twenty-seven factories paid for milk by the test.

Pasteurized the Whey.—Eighty factories pasteurized the whey and eight fed all or a portion of the whey at the factories.

Sanitary Conditions.—163 factories are reported kept clean and in good sanitary condition.

Annual and District Meetings.—From November 1st, 1911, to October 31st, 1912, 83 annual and other meetings of cheese factory and creamery patrons were attended by the instructors and myself. Total attendance, 4,625.

Prosecutions.—Fifty-four patrons pleaded guilty before police magistrates to delivering deteriorated milk to cheese factories. Fines from $5 to $50 were imposed.

New Factories.—Two new cheese factories were built at a cost of $7,000 and $10,641 was expended on general improvements, making a total expenditure of $17,641.

Resolution *re* Cooling Milk.—The patrons of 26 factories at the last annual meetings adopted the resolution which was passed at the last convention *re* the cooling of night's milk to 65 degrees. The patrons of a number of these factories carried out the agreement. On the whole the adoption of the resolution has been of much benefit.

Demonstration Outfit for cooling milk and cream (suggested in 1910 report).—During the past season the Cheese Instructors each carried a model outfit for demonstrating a simple method of cooling milk and raising the cans from the cooling tank. Most of the district representatives have been supplied with these model outfits, and, in addition, model insulated tanks for cooling cream, and these are being used by them to good advantage for demonstration purposes. These models together with a model septic tank for disposing of factory wash water were exhibited at the larger fall fairs. Circulars with instructions on the care of milk and cream and illustrations of the model milk and cream cooling outfits were distributed by the instructors among the patrons.

Experimental Work.—Experiments *re* the gains from cooled milk and the salting of curds were again conducted with results much similar to those obtained last year.

Creamery Instruction Report, 1912.

The two Creamery Instructors visited 104 creameries, 11 of which were combined creameries and cheese factories. Eleven creameries were taken over by the cheese instructors who visited them regularly.

QUALITY OF BUTTER.—The quality of the butter was fair, especially when we consider that practically all Western Ontario butter is made from collected cream. Some complaint was heard regarding the weak texture of a portion of the fall make. Fishy flavor has been noticed in a few lots coming from storage.

QUANTITY OF BUTTER.—Western Ontario produced 11,310,000 lbs. of butter at the creameries in 1911 and 1,676,257 lbs. at the cheese factories during the winter of 1911, making a total production of butter of 12,986,257 lbs. The figures for 1912 will be obtained after the annual creamery meetings.

PATRONS AND CREAM.—23,354 patrons supplied milk and cream to the creameries. The average per cent. of fat in the cream for the season was 26.25 per cent. A few creameries have introduced payment for cream by grade.

SUMMARY OF CREAMERY REPORT.

	D. McMillan.	M. Robertson	Total.
Creameries visited	44	54	98
Visited by Cheese Instructor			6
Total			104
No. of patrons sending cream	13,047	10,307	23,354
Lbs. of butter made in 1911			11,310,000
Lbs. of butter made by cheese factories, 1911			1,676,251
Total butter 1911			12,986,251
Full day visits	121	103	224
Call visits	11	57	68
Patrons visited		26	26
Patrons visited by Special Instructor			527
Average per cent. fat in cream	26	26.5	26.25
No. of tests made for moisture	257	147	404
Average per cent. of moisture	14.32	14.58	14.45
Samples showing over 16 per cent. moisture	24	17	41
No. of creameries these samples were taken from	14	9	23
No. of tests made for salt in butter	170	136	306
Average per cent. salt used	5.24	5.4	5.32
Average per cent. salt left in butter	3.31	3.3	3.3
No. of creameries cream collecting	43	59	102
No. of creameries, separator	1	1	2
No. of creameries using Babcock Test	39	59	98
No. of creameries using Oil Test	5	1	6
Creameries using combined churn	44	60	104
Creameries using scales for weighing samples	21	18	39
No. of creameries using large cans for collecting cream	15	12	27
No. of creameries using jacketed cans	7	3	10
No. of creameries using individual cans	6	38	44
No. of creameries using cream tanks	11	2	13
No. of creameries using individual and large cans	3	3	6
No. of creameries using tanks and large cans	3	2	5
Average temperature of storage	45	43	44
Creameries having good water supply	43	59	102
Creameries using culture	1	6	7
Creameries using coolers	16	16	32
Creameries using Pasteurizers	6	9	15
Expenditure New Creameries	$17,000	$29,300	$46,300
General Improvement	16,683	20,570	37,253
Total			$83,553

CREAMERY VISITS.—224 full day visits and 68 call visits were made by the Creamery Instructors.

MOISTURE.—404 tests for moisture were made. The average per cent. of moisture was 14.5 per cent. A proportion of these tests were made at each creamery. 41 samples contained over 16 per cent. of moisture. These samples were taken from 23 creameries.

SALT.—306 tests were made for salt in the butter by the use of the Silver Nitrate Test. The average amount of salt used was 5.32 per cent. and the average amount of salt left in the butter was 3.3 per cent.

HOW CREAM IS TESTED.—Thirty-nine Creameries have installed the scales for weighing cream samples. Six creameries only use the oil test.

PASTEURIZATION.—Fifteen creameries pasteurize the cream, a portion of these only part of the time.

STORAGES.—The average temperature of the creamery storages was 44 degrees.

HOW CREAM IS COLLECTED.—Twenty-seven creameries use large cans, 10 jacketed cans, 44 individual cans, and 13 cream tanks.

CULTURE AND COOLER.—Seven creameries used a culture and 35 creameries a cooler.

EXPENDITURE.—Eight new creameries were built at a cost of $46,300 and $37,253 was expended in general improvements, making a total expenditure of $83,533.

VISITING CREAMERY PATRONS (Suggested in the 1910 and 1911 report).—From the 15th of July to the end of the season a Special Instructor (Mr. J. B. Smith) was employed to visit creamery patrons. A letter and application form was sent to each creamery man and a request from 14 for the services of the Special Instructor was received. Five hundred and twenty-seven patrons were visited. Ninety per cent. of these patrons had abundant water supply, but only 35 per cent. cooled the cream in water, while 2 per cent. only cooled the cream in water and ice and 50 per cent. still cooled the cream in the cellar. Sixty-five per cent. of hand separators were washed each time after using. There is a wide field for further work along this line. Several of the creamery men expressed themselves as well pleased with the results obtained, and it is quite probable that the work may be continued if the creamery men so desire. We would be pleased to have your views on this point.

RESOLUTION *re* COOLING CREAM.—At the annual district meeting held at Guelph in December last a resolution (copy of which has been handed you) was passed. This resolution is similar to the one passed at the last convention in reference to the cooling of milk. If this resolution meets with your approval we would be pleased to have you pass it at this convention.

RESOLUTION.

Whereas, in the opinion of this meeting some definite temperature should be established for cream sent to creameries, be it resolved that: (1) Wherever possible cream be cooled immediately after separating to a temperature of 55 degrees or lower, and kept at that temperature until delivered to the cream hauler. (2) To facilitate the rapid cooling and provide a convenient method this meeting recommends the use of cold water or ice and water in an insulated cream cooling tank similar to the one described in the 1912 Creamery Instruction Circular.

CENSUS OF PATRONS *re* PAYMENT OF MILK BY TEST (Mentioned in 1911 Report).—At the Guelph meeting the question of taking a "Census of Opinion" of the patrons of cheese factories regarding the payment of milk by the test was discussed. A resolution was passed suggesting that if possible some action be taken along this line. Such a census would probably embody the following three points: (1) Are you in favor of the payment for milk at all cheese factories by the test? (2) Which test do you prefer? (3) Would you be willing to pay for the extra work of testing? It has, of course, not yet been decided to take this census, and it may be advisable not to do so, as there may be many vital objections, but, in our humble opinion, it would seem that if possible something should be done to find out the views of the milk producers on this point before we can go much further in the matter. It may be true that some of the patrons have not familiarized themselves with the test question and are therefore not in a position to give an opinion in the matter. The hearty co-operation of the owners and directors of all cheese factories would be necessary before a census of this kind could be undertaken and carried out with any degree of success. Unless we could feel assured that the factorymen would willingly support the movement we do not see how the work could be successfully accomplished. However, we would be pleased to have your views if you care to discuss the question.

COOLING CREAM BY THE BRINE SYSTEM.—During the coming season we hope to be able to conduct some experiments at a creamery relative to the cost and possible advantage of cooling cream with brine.

A STANDARD CREAM TEST BOTTLE.—We believe there are at present too many kinds of cream test bottles. We would suggest that some action be taken before next year to decide upon one or two standard bottles.

A DAIRY CENSUS.—A dairy census of the patrons of 18 cheese factories and 3 creameries were taken during the past season. Much valuable information was obtained, a complete summary of which will, no doubt, be published.

I wish to thank the instructors, the factorymen and everyone connected with the dairy industry for their hearty co-operation in the work of improvement.

MR. HERNS: Some of the buyers complain every year that a few of the makers are negligent in the matter of turning the cheese on the shelves during the late fall months, and that some of the cheeses are received from the factory with wet rinds and are discolored and the ends soft. They have asked me to especially mention this point and to ask the cheesemakers not to neglect this important part of the work. The buyers also claim that some of the fall cheese are not sufficiently cured, for although a temperature of about 60 degrees is the best for summer cheese, many of the curing rooms fall far below this temperature during the late fall months, which is certainly bad for the cheese. The buyers say that sometimes they have to dispose of these cheese quickly, and they cannot be expected to keep fall cheese in storage half the winter in order to cure them, and they make a special request that the cheesemakers kept a little fire in the curing room during the fall months and not allow the temperature to go below 60 degrees.

We get returns from each factory regarding the output from the annual statements, and I wish to thank the secretaries of the different factories for their co-operation in providing us with the figures and their annual statements. It is important to have these returns for they are incorporated in the report of the Bureau of Industries showing the total production of dairy products in Ontario. You will remember that in both the 1910 and 1911 report, we suggested that if money could be obtained to do so, it might be a good plan to employ a special creamery instructor to spend all his time in visiting the patrons of creameries. Several years ago, two or three of the creamery men were very strong on that point, and they wanted work of that kind done, and this year we were able to get a little money for the work. From the 15th of July to the end of the season a special instructor, Mr. J. B. Smith, was employed to visit the creamery patrons, and an application form was sent to each creamery man, and we received requests from fourteen or fifteen.

The instructor visited 527 patrons, and we received very good reports from him. We could not very well continue that work unless the creamery men desire to have it continued, and if you think a special instructor will be of some benefit to you, I think I am safe in saying we will be able to get enough money to carry on that work during the coming year; but we would have to have some assurance from a number of the creamery men that they want the work continued, otherwise it would not pay us to hire a man for that purpose and have him idle a portion of the time.

I wish to present for your consideration the following resolution: Whereas in the opinion of this meeting some definite temperature should be established for cream sent to creameries, be it resolved that: (1) Wherever possible cream be cooled immediately after separating to a temperature of 55 degrees or lower and kept at that temperature until delivered to the cream hauler. (2) To facilitate the rapid cooling and provide a convenient method this meeting recommends the use of cold water or ice and water in an insulated cream cooling tank similar to the one described in the 1912 Creamery Instruction Circular.

We think you can take this resolution up with your patrons at the annual meeting and have them pass a similar one. We hope it will have some effect in bringing the matter before the patrons by way of discussion, so that they will understand more fully the importance of cooling cream in some different way from the method now adopted of cooling it in the cellar. One of the great troubles is that a large percentage of creamery patrons cool the cream in the cellar, and during extremely warm weather it cannot be expected that the cream will be in the best condition. By the cellar method of cooling it takes too long to lower the temperature, and I think it is of as much importance that the temperature of the cream be lowered quickly after it leaves the separator, as it is to get a low temperature. The quicker the cream is cooled, the better condition will it be in.

A MEMBER: I would like Mr. Herns to explain how he cools with brine.

MR. HERNS: The rotary pump is attached to the tank and the brine is forced through the cooler. In this way the temperature of the cream is lowered much more quickly than it is by water and ice alone, or by water alone. I know of one creamery this summer which used the brine tank most of the time. I was talking to the manager last fall, and he told me that as far as their experience went, they would not think of attempting to cool the cream in any other way than with the brine system, and they had to buy their ice. The outfit consists of a square box, smaller at the bottom than at the top in order to let the ice down, and a sieve is placed so that the ice does not fall to the lower trough. Then the brine is drawn from the trough through another sieve to prevent any impurities in the ice clogging the pump, and it is drawn up and forced through the cooler, and the brines come back again over the ice and is drawn out again. It is a continuous system, which of course uses up the ice, but you get a much lower temperature from the brine passing through the cooler than you do from the water and ice alone.

We are going to make some further experiments in connection with this system and we want to see the effect it has on the inside of the cooler and the cost and efficiency before we make any definite statement. We have not been able to work it out yet. Mr. A. T. Bell, whom many of you know, was out West this summer in creamery work, and he tells me they used a brine tank continally and that they were well satisfied with it.

MR. G. G. PUBLOW: I take much pleasure in moving the adoption of the resolution with reference to the cooling of cream. I think it is a very important matter. A similar resolution was passed at the Eastern Convention last year with reference to the cooling of milk for cheese factories, and we have had splendid results from it.

We have one small factory where there are only fourteen patrons, all Indians. As a result of that resolution, all these patrons are cooling the milk (the only factory that we have in Eastern Ontario that is doing that), and the results have been most marked indeed. There never was better cheese made in the factory, and they make more cheese per pound of milk than they ever made before. I think the matter of cooling the milk is very important.

While we are making progress every year, there are still a large number of our creamery men who do not cool the cream quickly enough nor to a sufficiently low temperature, and we believe this is one of the means by which we can improve in buttermaking. For these reasons, I take much pleasure in moving the adoption of that resolution.

Mr. J. N. Paget, *Canboro*: I have great pleasure in seconding that resolution. I believe it is of very great importance that we should get our patrons to realize the value of cooling the cream to a proper temperature. The temperature that is considered proper is given in this resolution.

It was thought best to delay the vote on this resolution until the Buttermakers' Session, which would come on in the afternoon. The resolution was again moved at the Buttermaker's Session by **Mr. W. G. Medd** and seconded by **Mr. Lister**, and carried unanimously.

CHEESE EXPERIMENTS AND INVESTIGATIONS AT THE O. A. C. DURING PAST THREE YEARS.

Prof. H. H. Dean, O. A. C., Guelph.

I would first of all distinguish between an experiment and an investigation. An experiment is the simplest form of a test or trial in order to determine the effect, or effects, of one or more different conditions. For example, suppose a cheesemaker divides a curd on a certain day into two equal parts and applies salt at the rate of two pounds per 100 lbs. curd to one lot and two and one half pounds per 100 lbs. curd to the other lot, and notes the effect on the yield and quality of the cheese. This would be an experiment. Suppose, however, that he analysed these curds, or determined the amounts of moisture, and dry matter, took notes of all the conditions such as temperatures of curd and salt, weather, conditions of ripening the cheese. composition of the cheese etc., and continued this throughout a series of years so as to include the varying states of milk and weather in the different seasons—every possible point which might affect the results being carefully weighed and considered—this may be called an investigation. The one is simple and temporary; the other is compound and more or less permanent in its conclusions. "Keen observation of the fact, accurate record of the fact, correct inference from the fact"—this is the method of all scientists. Progress among mankind depends more upon scientific attainment than upon any other one thing—"Unless science makes progress, practice marks time." *Opinions* count for very little in this practical age. "A mere matter of opinion" has become a proverb, although in some cases "opinions" are expensive: for instance, those obtained from the legal fraternity.

The importance of investigational work in agriculture has been recognized for some time. Our neighbor, affectionately known as "Uncle Sam," appropriated for the present year $22,656,496 of which $177,900 is to be given for dairy work. Our own Dominion of Canada appropriated from the revenue of the country the sum of $2,660,900 for agricultural advancement, of which $140,000 is assigned for dairy work. A prominent business man said to me recently, the greatest problem before Canadian statesmen is how to improve the conditions of. and make larger returns for, the farm and farmer. The work of the Ontario Agricultural College has this for its primary object, but results seem meagre and slow.

The Dairy Department of the College aims to meet, so far as possible, the needs for educational, experimental, and investigational work among four classes: milk producers or dairy farmers; milk dealers and consumers; milk manufacturers, chiefly cheese and buttermakers; cheese and butter merchants—those prices of the powers of the dairy world. As the O. A. College is both an educational and experimental or investigational institution, less than half of each year can be devoted to the latter function. No doubt in the near future these two features will be more sharply defined than at present. To do the most effective investigational work, a man should not be hampered with teaching work, but a good teacher must give a certain amount of attention to investigational work and not be a mere parrot, quoting what someone else has said, done, observed, or discovered.

Two great difficulties are experienced in all investigational work. One is to get trained men to do the work, and the other is to get the results in attractive form before the people for whose benefit the work was undertaken. Reports, bulletins, newspaper and magazine articles, and addresses, all these are more or less effective; but if I were a millionaire I would make use of two agencies for the spread of agricultural and dairy knowledge among the people on the farm which are now very little known in country districts. These two agencies are, "The Moving Picture Show," sometimes called "Movies" for short, and the "Drama." Personally, I would prefer the "Drama," where real persons, animals and appliances and products, with suitable stage equipment with all the necessary accessories of music, colored lights, comfortable seats, etc., which go to make strong impressions, would be utilized to teach agricultural and dairy lessons. Why could not a suitable stage with clean men and women, feeding and milking real cows in a clean stable, caring for milk, separating cream, churning, etc., with suitable music be made an effective means of teaching the people the first principles of dairying in a most effective manner? This method, is the oldest method of teaching morals, known to mankind. It is too bad that the "stage," has in some cases become degenerated from its high legitimate first estate.

Suppose it were intended to teach a lesson on cheesemaking. The actors would be a farmer, his hired man, wife, son and daughter, the milk hauler, the cheesemaker and assistants, the cheese buyer, Railway Agent, and train hands, Steamship employes, cheese merchants in Canada and England, retailers and consumers: the scenery in Act I., scene 1, would represent a farm; scene 2, hauling milk; Act II., scene 1, cheese factory and men making cheese; 2 ripening cheese and buyers inspecting; 3 loading cheese on cars and steamboat; Act III., scene 1, cheese landing at English port; 2, receiving at warehouses; 3, retailer's shop; 4 pleased or dissatisfied consumers in English or Scotch home, with the necessary dialogue, etc., to make a good drama.

On this occasion since we have no actors to teach the results of the investigations in cheesemaking at the O. A. C., during the past three years we must do the best we can in poor words to bring the main facts before this audience in a condensed form.

We shall group what we have to say, about two points or centres—the raw material, milk; and the finished product, cheese. These are acted upon by agents, chief of which are temperature, acid, moisture, rennet and salt. I have placed them in what I consider their order of importance, as to effects upon the two groups or centres named. I have left out bacteria for the reason that this is a special subject by itself.

Temperature is the most important agent acting upon milk and cheese. The thermometer, correctly graduated and intelligently used is one of the most valuable aids to the dairy farmer and cheesemaker. As an example of intelligent use of a thermometer on a dairy farm, we may cite results got by our cheesemaker, Mr. McKay, in cooling milk from the college herd; temperature of 150 lbs. of milk in each of two cans was 95 degrees F. setting in water, which was a temperature of 44 degrees F. One can was stirred and the other was not stirred. The can not stirred, cooled to 66 degrees in one hour, a drop of 29 degrees and there was no difference in the temperature of the milk taken every ten minutes at the outside, six inches from the outside or centre of the can. The other can stirred during the time of cooling, dropped 41 degrees in the hour, cooling to 54 degrees. Both cans were at 44 degrees F. the next morning. The milk in the stirred had .145 per cent. of acid the following morning and the lot not stirred had .16. Both were in good condition for making finest cheese. This test was made on May 30th, 1912. Similar results were got with a test made July 16th, except that as the water was much warmer than in the previous test, the milk was cooled to but 72 degrees in the not stirred can and 68 degrees in the stirred can. Both lots were at 60 degrees the next morning, and strange to say the acidity was .145 and .14 per cent., respectively, for the two lots—less than it was on May 30th when the milk was cooled to a much lower temperature. The cans were 14½ inches diameter, of the ordinary tin variety. The practical lesson to be learned from this is that night's milk cooled to about 70 degrees will keep in good condition until the next morning and that stirring of the milk is not necessary for good results.

EFFECT OF TEMPERATURE ON CHEESE.

As the average of two seasons' investigations on the effect of ripening cheese at an ordinary temperature (60 degrees to 75 degrees F.), at ordinary temperature for one week, then ripened at 40 degrees F., and placing cheese at once from the hoop in a ripening temperature of about 40 degrees F., we found a saving of about one per cent. in shrinkage by ripening at the lower temperature in 1911, a saving of about one-half of one per cent. in 1912, while the cheese ripened at the comparatively low temperature scored an average of over three points higher in both years, compared with ripening at ordinary room temperature, while the lots allowed to remain in the ordinary room for one week before placing in an ice-cold storage at 40 degrees, scored an average of about half a point less than the lots ripened for the full lengths of time at 40 degrees F. The practical lesson to be learned is the importance of ripening or curing cheese at a comparatively low temperature within a week after making

Effect of Milk Acid on Raw Material and Finished Product.

While temperature is the key of the cheese industry, acid is the corner-stone. To show the effect of too much acid on milk at the time of setting the vat or adding the rennet, the following is the average of three years investigations:

	Av. % acid in milk at setting	Av. No. minutes in whey	Av. lbs. cheese per 1,000 lbs. milk	Av. score of the cheese Max. 100
A lots..........	.216	57.2	88.8	91.36
B lots..........	.175	172	89.9	92.05

The striking lesson from the foregoing is that when milk has over .2 per cent. acid at the time rennet is added, or the curd remains in the whey less than one hour, it means a loss of over one pound of cheese per 1,000 lbs. milk, and a deterioration of the quality of the cheese, represented by a score of nearly one point less. As high acid in milk is caused indirectly by high temperature of the milk, the practical point is the importance of having milk properly cooled so as not to have too much acid developed by the time it reaches the factory for the cheesemaker to handle.

Closely associated with the question of acidity of milk at the time of adding the rennet is the question of acidity at the time of "dipping" or removal of the whey. Three years investigations gave us the following results:

	Av. % acid at dipping	Av. lbs. cheese per 1,000 lbs. milk	Av. score of cheese Max. 100
A lots......................	.198	92.09	91.99
B lots......................	.158	92.61	92.56

An average increase of .04 per cent. acidity above .158 at the time of dipping, reduced the yield of cheese per 1,000 lbs. milk by one-half a pound, and decreased the average score of the cheese by half a point. These results indicate the danger of allowing too much acid on curds at the time they are separated from the whey. No one can say exactly where the danger line is for all milk, but it probably lies somewhere between .17 and .2 per cent. acid, varying in different localities and with various kinds of milk.

Milk and Cheese Moisture.

I would first call attention to the fact that the moisture or water in milk and cheese are identical. Cheese moisture differs from butter moisture in the fact that the former is that which is carried from the milk, through the various steps of cheesemaking into the curd and finally into the cheese. Not so in the case of butter. The moisture in butter is an extraneous, foreign substance and is not the natural ingredient of butter. The cheese moisture also differs from that found in butter, in that it contains valuable food compounds in a state of solution and easily digested, therefore, on theoretical grounds the more moisture which can be retained in cheese, consistent with good quality, the greater the number of pounds of cheese which can be made from 100 lbs., or any given weight of milk, and this is not inconsistent with furnishing pure dairy products, because we thereby utilize more of the valuable human food constituents of milk instead of wasting them in the whey tank. How much moisture can be safely left in a Canadian Cheddar cheese is a question that has not yet been settled. Our own investigations indicate that the percentage of moisture best suited for Canadian export Cheddars is probably about thirty-five. The average percentage of moisture in eleven samples of cheese one month old sent to the Dairy Department of the College by Western Ontario instructors in 1910 was 34.638. During 1911, forty-two samples of cheese sent by Eastern Ontario instructors averaged 34.647 per cent. moisture. The green cheese from these lots averaged 34.664 in 1910 from Western Ontario and 35.238 for the Eastern Ontario lots in 1911. Taking the evidence collected from factory cheese samples and those made in our dairy at the College, it would seem as if about 35 per cent. moisture is what our cheese are carrying at present. Whether or not a higher percentage of moisture is practicable or advisable, remains to be seen.

Cutting curds with a perpendicular knife having the wires one-quarter of an inch apart, decreased the yield of cheese about one-half a pound per 1,000 lbs. milk, as compared with cutting curds with a ⅜ inch knife. The latter cheese also contained slightly more moisture and scored a little higher on the average.

As a result of two years investigations on the distribution and loss of cheese moisture we have arrived at the following conclusions:

1. When first made the moisture appears to be fairly evenly distributed throughout the cheese and remains so, except in the rind or first ¼ inch of cheese.

2. The higher the temperature at which cheese are kept during ripening (curing) the greater the loss of moisture, but this loss appears to be chiefly from the rind or first quarter of an inch of the outside of the cheese. The moisture in the centre of the cheese remains fairly constant for at least one month.

3. The loss of moisture takes place largely during the first week of ripening. During 1911, a comparative test of rind moisture and in that part of the cheese next to the rind, gave 26.5 per cent. moisture in the first quarter inch and 34 per cent. in the second quarter inch of a plug from a cheese ripened in an ordinary room.

RENNET.

We have compared results from a number of different brands of rennet extract and find that all those tested by us have given satisfactory results. One brand contained 1.2 per cent. acid, as compared with about .8 per cent. in a standard extract, but other than a lack of smoothness and firmness in the coagulum from the high acid rennet, there was little or no difference in the result. How much acid a standard and safe rennet may have is a question not yet settled. Canadian cheesemakers apparently have good rennet supplied by the manufacturers. In general we find that an increase in the quantity of rennet used per 1,000 lbs. milk above normal (3 oz. per 1,000 lbs. milk) means less time for coagulation, less moisture in the cheese, an increase in the soluble caseous matter of curd and green cheese, and less time required for ripening or curing the cheese. It is altogether likely that rennet is the active agent in causing the change known as ripening or curing of cheese.

SALT.

Tests made in 1911, comparing weight of milk (per 1,000 lbs.) and weight of curd (100 lbs.) as basis for applying salt, indicated that either plan is satisfactory and both methods gave practically the same results in weight of cheese, shrinkage, moisture in green and ripe cheese, and in quality of cheese. The one lot was salted at from 2 to 2¼ lbs. salt per 1,000 lbs. milk and the other at the same rates per 100 lbs. curd.

Comparing different amounts of salt applied to similar curds during the seasons of 1911 and 1912, the rate varying from 2¼ to 2½ lbs. per 100 lbs. curd in the one case, as compared with salting at the rates of 2¼, 2½ and 2¾ in the other, the higher rates of salting gave the best results in 1911 and slightly poorer results in 1912. The percentages of shrinkage during one month were greater from heavier salting in 1911 and less in 1912. The percentage of moisture in green and ripe cheese were practically the same in 1911, but were greater in the lightly salted curds of 1912.

These results are not very conclusive. It would appear as if the condition of the curd at the time of salting is quite an important factor in deciding the best rate of salting for curds, in order to make the finest cheese. The season and character of the milk may also be contributing factors in the case.

The foregoing are among the chief of the investigations and experiments made in the Cheese Branch of the Dairy Department of the College. The details of the work and results of a number of tests not referred to in this address may be found in the Annual Reports of the Ontario Agricultural College, free copies of which can be obtained by applying to the Department of Agriculture, Toronto.

DAIRYING IN EASTERN ONTARIO.

G. G. Publow, Chief Dairy Instructor for Eastern Ontario, Kingston.

I am sure it is a real pleasure for me to meet with you once more. I always feel that in attending this Convention I get a good deal of information and can go back to the east filled with resolutions to do better work next year.

I bring to you greetings from your sister association in the east. We had our Convention last week in Kingston, and we consider that we had a very good one. The attendance was good, and the subjects dealt with were of real interest to those who attended. There appears to be a feeling in the east that the time has arrived when we should introduce some new features in the Convention work to make it of real interest to those in attendance, and we have decided to imitate some of the good work that you are doing in the West. We intend holding a dairy show in connection with our meetings, and I feel that you can take it as a compliment from us that we are imitating you in this respect. We believe that this feature of your work has been of real benefit to the makers.

Every time I have come here and looked over your exhibits, I can see an improvement. The improvement that appears to me to be most noticeable is the finish of your cheese and the uniform high scoring. Any person listening to the judge's report on the prize winners here to-day could not but be impressed with the small difference there was in the scores; in some cases it was all within one point, and that speaks well for the work. I wish to congratulate the makers and instructors in this district on the splendid work they have done.

At our executive meeting, a resolution was passed appointing two directors to meet with a committee of this Association to discuss the advisability of holding a dairy show in some central place. We do not propose to take very extensive action in reference to our dairy exhibit until we see what is done regarding this matter.

I believe there are many good points in connection with the holding of one central show, where the eastern and western men can meet and discuss problems with one another and have a real good exhibition. If nothing is done in that respect this year, we intend having a dairy exhibit next winter and we will be pleased to have any of the members of this Association join with us and enter into competition.

I believe I am to discuss the paper given by Prof. Dean, but he has gone into the subject so clearly and forcefully that there is not very much left for me to discuss. I might say that there are one or two points in connection with his splendid address that we could well afford to spend sometime on. Some of you will remember what I said in reference to our Canadian cheese after my visit to Europe last year about the complaints that were made that many of our Canadian cheese were too lean in character. I told you that I saw the cheese myself, and tried to take a fair view of matters in comparing New Zealand cheese with our cheese in the English market, and I found the New Zealand cheese were enjoying an excellent reputation as to texture. Their cheese were arriving in the Old Country with considerable age and were properly ripened, and they had a smooth meatiness of texture which was much sought after by the consumers and dealers in cheese in the Old Country. The complaint with regard to some of our cheese was that they were lean, and did not have that smooth silkiness in texture which the cheese from New Zealand have.

On looking closely into these cheese I came to the conclusion that this fault was not due to lack of fat but to lack of moisture and insufficient curing. You must remember that what we consider our finest type of cheese is the type of cheese most sought after in the Old Country; but a large number were coarse in character. I am satisfied that this defect is largely due to two things, one of which is the milk being over-ripe at the time of adding the rennet, and the other, is over-salting the curds made from that character of milk. Knowing the factories and the methods employed by the makers, enabled me to come to these conclusions probably more quickly than I might otherwise have done.

This year we made a special effort to see if we could not lessen the number of cheese of that character, and with that end in view, we held four cheesemakers meetings at the beginning of the season in the place where these difficulties were most pronounced, and these meetings have proven to be of real benefit. They were well attended. At some we had as many as fifty cheesemakers, and as a result of these meetings, the milk in these districts was set sweeter and the curd salted lighter, and the cheese have been very much better. We carried on some work at the Dairy School. In some of the factories in reference to this matter, and we found practically the same results as shown from the work at Guelph—that the riper the milk is at the time of adding the rennet, the greater number of pounds of milk are required to make a pound of cheese, and the more inferior is the quality of the cheese. This is perhaps the weakest point in our work in Eastern Ontario, and we have been trying for years to prevent the makers from over-ripening their milk. We have done a lot of work towards getting the farmers to deliver the milk to the cheese factories in a sweeter condition, and the farmers of Eastern Ontario are now delivering their milk in a sweater condition than ever before, but notwithstanding this, we have many makers who over-ripen the milk and then use too much culture, and the result is cheese of a character that does not take well on the British market. This is one problem we have to fight against very hard. and against which we are making slow progress, particularly in the districts where they practise the method of shipping the cheese very closely to the hoops.

Another thing is the salting of the curds made from ripe milk at the same rate as from normal milk. I do not know whether you have been doing this in the West or not, but we all know that as a result of the milk being over-ripe, the method usually adopted of handling it is by cutting finely, and using a higher temperature in cooking, and extra stirring, and by that means we get a fewer number of pounds of cheese than we otherwise would, and we will make the cheese drier. When the milk is over-ripe, we have been able to reduce the pounds of salt one-quarter pound per thousand, and by so doing, we have improved the texture of the cheese. We have laid special stress upon these two points because we feel that many of the makers in the East are over-ripening their milk and over-salting their curds from that kind of milk.

These are the greatest complaints we have received from the merchants, particularly if they have held the cheese for sometime. Many of our cheese are shipped very young, in fact I can say to you that probably 150 reports came to me a week from the inspectors saying "No cheese to report on." In some sections, when the instructors go to some of the factories on Monday and Tuesday, there is no cheese there, and in other factories they find the cheese too young to report on. How can we do effective work of instruction if there is nothing there to be seen of what the maker is doing, and we have to depend upon getting our information from the merchants in Montreal? If the market is strong and the merchants can dispose of the cheese at a profit, we probably hear nothing about them; but if the time comes when the market is not so bouyant and there is danger of the merchants losing on these cheese, then we hear complaints right away. Our makers still persist in shipping the cheese out shortly after they are made notwithstanding what was said about that last year. I think 20 per cent. more of our factorymen shipped the cheese from the hoops last year than they ever did before, and the time is coming when some definite stand should be taken whereby they will be prevented from doing so because the whole country is effected by the reputation which is likely to result from the adoption of such a method as that.

Prof. H. H. Dean: I am very sorry indeed that my train was half an hour late, but you have heard the main points of my address which were embodied in my paper, read by Mr. Alex McKay, who knows more about the details of the work than I do. It has also been fully discussed by Mr. Publow.

What I wish to say at the present time will relate to two or three points, one of which is touched on in my paper, and one or two other points not touched upon. There are three things that ought to make us, as dairymen, pause and ask ourselves: "Is all well with the dairy business in the Province of Ontario?" These three things are first: Our declining cow population. We cannot get away from the fact that the number of cows in the Province of Ontario is decreasing every year. The second fact is, that our exports of butter have ceased, and we may ask, why? And the third point is, that our exports of cheese are declining. Again we may ask, why? These three points ought to make us stop and consider where we are at, at the present time. I am not a pessimist, but I believe we ought to pause and consider the matter. Why is the number of our cows declining in the Province of Ontario? One reason is that many farmers are testing their cows and finding out the ones that are unprofitable, and they are selling these cows or giving them away to somebody they have a grudge against, and this is having a debilitating effect on our whole dairy industry. The time is coming when we must adopt some radical and safe measures to improve the quality of our cows and increase or at least maintain the present number.

In looking over this great Province I find no organization at the present time that has for its chief object the improvement of the quality of our dairy cows. That may be a strong statement to make, and yet I think I am safe in saying that we have no active organization that is trying to maintain or increase the number and improve the quality of the dairy cows in the Province of Ontario. But our leading men are waking up on that point. Some two months ago I had a letter from the manager of one of our largest dairy companies in the Province, who asked me to write a short article on the value of improving the herd by the use of pure-bred dairy sires. He wished to send it to their customers. I complied with great readiness, and tried to show what a pure-bred sire would do in improving the value of cows. In many of these herds such animals were not used. This gentleman said in his letter that it was their intention to put pure-bred sires within the reach of all the farmers who were supplying them with milk, and that they would do it at no cost whatever to the farmers. To my mind, as the constructive work goes on, it will bring forcibly home to the farmers the value of a pure-bred dairy sire.

I think I am safe in saying that the average dairy farmer in Ontario does not realize the importance of having a pure-bred animal at the head of his herd.

A MEMBER: What breed would you say?

PROF. DEAN: I am not prepared to recommend any special breed, but I do recommend a dairy breed.

NEW EXPERIMENTAL STATIONS.

G. H. BARR, OTTAWA.

For a report of this address, see report of Eastern Dairymen's Association, p. 39.

REPORT OF NOMINATING COMMITTEE.

The report of the Nominating Committee was presented. (See page 6 for list of officers.)

THE CAUSE AND PREVENTION OF FISHY FLAVOR IN STORED BUTTER.

DR. F. C. HARRISON, MACDONALD COLLEGE, P.Q.

It is some years since I had the pleasure of attending and of addressing this Convention, and I must thank the officers for this opportunity of again coming amongst you and speaking to you upon a technical subjest.

RÉSUME OF LITERATURE ON FISHY FLAVOURED BUTTER.—The fishy flavour of butter has been known for a number of years, and in some of the more recent text-books on dairying there are references to this peculiar taste. It is said to have been common in Denmark before the era of pasteurization, but so far as I can ascertain the first reference of importance occurs in the "Colonial Dairy Produce Review," compiled and published by W. Weddell, of London, England. About 1900 it is stated that much Australian butter sent to England had a pronounced fishy flavor that was very objectionable. and which caused considerable depreciation in price. In 1901 the New South Wales Dairy Expert, M. A. O'Callaghan, found that the fishiness of Australian butter was due to a mould, *Oidium lactis.* By inoculating milk with this organism fishy flavored butter was produced, while the control portion of the milk produced butter of good flavor. By pasteurizing a portion of milk containing the mould the pasteurized milk produced butter of good flavor, while the control transmitted the fishy flavor. O'Callaghan therefore recommended pasteurization at 168°F., as that temperature readily destroyed the organism. Cleanliness in and about the dairy was urged to prevent the inoculation of the butter during the manipulation of the milk.

Du Roi, however, writing in the *Milch Zeitung,* found the pasteurizing at a temperature of 158°F. did not always control the fishy taste in butter.

In 1901 there were several discussions as to the cause of fishy butter in the creamery journals, notably one by H. G. Piffard, who attributed the flavor to algæ (low form of aquatic life) commonly found in stagnant, fishy flavored water.

In 1903 appeared a bulletin on studies upon the keeping quality of butter by L. A. Rogers, of the U.S. Department of Agriculture. Rogers took two lots of freshly canned butter, kept them at room temperature and examined them at frequent intervals as regards condition, bacterial content, etc., and in from 250 to 300 days the samples showed a disagreeable fishy flavor. An increase in acidity accompanied the change in flavor, and both changes in acidity and flavor progressed steadily after the disappearance of the micro-organisms, showing that the changes were not due to direct action of the living cells. Rogers thought that it was reasonable to suppose that enzymes of the milk, acting alone or in conjunction with the yeasts and the resulting enzymes was responsible for the so-called fishy flavor in butter packed in large but unsealed vessels.

Later, in 1909, L. A. Rogers, of the United States Department of Agriculture, published a bulletin on "Fishy Flavor in Butter," in which he states that the trouble is widespread in occurrence, but most noticeable in newer dairy sections. It occurred at times in fresh butter made during the summer months, but usually appeared in cold storage butter after it had been held over for some time in cold storage, and even low temperature did not prevent the development of the fishy flavour. He could not produce the fishy flavor by inoculation with the mould *Oidium lactis.* He did not try the variety with which O'Callaghan worked. No species or group of bacteria could be found peculiar to creameries having trouble with fishy flavor; the only peculiarity of the cream from farms producing fishy butter was the presence of very active lactic acid bacteria. The experimental butters which became fishy were all made from high acid cream. Overworking the butter made from sour cream at times produces fishy flavor. In the opinion of this author fishy flavor is caused by a slow, spontaneous chemical change by which acid is developed and which is favoured by small amounts of oxygen. As a means of prevention, he advocated making butter from pasteurized *sweet* cream, and butter made from pasteurized sweet cream with a starter, without ripening, seldom, if ever, becomes fishy.

These seem the principal references to fishy flavor in butter, except one or two which occur in dairy text-books, which are as follows:—Lafar, in his text-book on Technical Mycology, published in 1904, states that fishy butter is due, or is found to appear when in certain regions pastures are flooded by salt water and the grass or hay made therefrom is covered by small crustacea. The use of common salt made from sea water, or salt which contains much magnesium, imparts a fishy flavor to butter, and there are numerous instances in which the presence of too much salt has resulted in fishiness. A fourth cause is due to micro-organisms.

Weigmann, in his text-book on the Mycology of Milk, published in 1911, gives the same causes.

Siedel found that a cause of fishy flavour in butter made from pasteurized cream was due to the washing of the pasteurizing apparatus with soda solution, which, in spite of repeated washing and rinsing with water left a grayish deposit on the metal, which seemed to impart a fishy taste to the butter.

Opinions of Produce Dealers.—In this connection I wrote to several large exporters of butter in Montreal, asking them if they had had any experience of this defect in Canadian butter, and if so to what extent, and to what degree it depreciated the value of the article. I received a number of instructive replies, which I may summarize as follows:—

"1. There have been many theories as to the cause of 'fishy flavor' in butter. Formerley 'fish' was given as a reason, then 'salt,' then salt that had been near 'fish,' then 'salt stowed in vessels crossing the ocean,' but more recently the fault has been attributed to 'dirt' in various forms, the flavor being taken in through the milk or cream or through the 'salt.' Probably the fault comes more frequently through the 'salt' than in any other way, but we are satisfied that there are other causes."

"2. We have met with this flavor in butter quite frequently, and fishy flavor butter usually sells at 1 to 2 cents per pound under the price of finest, the depreciation, of course, depending upon market conditions. It has been our experience that fishy flavor is not often met with in new butter but generally arises in butter that has been held in cold storage for some length of time. We have also noticed that when butter is very mild salted the fishy flavor does not seem to develop to the same extent as in higher salted butter."

"3 *Re* 'Fishy flavored butter.' This is a common fault with all held butter, and we think only an exaggerated term for 'staleness,' at least the two go hand in hand. It is a question of degree. The lower the temperature the slower the process. We think salt somtimes turns butter fishy. Saltless' butter is rarely fishy in low temperature.

"As to the value of these faulty flavored butters, it is a question of degree again. Personally, I would not have fishy butter on my table as a gift, but there are many people who seldom or never get anything else; of course, they don't know as I do. Ordinarily, such butters have to be sold at 1 to 4cts. per lb. under finest, mild, fresh flavored. Canadian tastes have changed very much the last few years as regards butter, and it is more difficult to sell low grades than formerly, even at the reduction. There is not so much fishy butter as formerly, because we think it goes into consumption more regularly now than in former years."

From the results of former investigations, and from the opinions of leading wholesale butter merchants, it seems pertinent to inquire if the term "fishy" accurately describes the flavor or trouble complained of. I have noted often that expert judges seldom agree in their description of a specific flavor, and it is certainly necessary to have a standard for comparison. Shall we define fishy flavor as a peculiar oily taste suggestive of certain parts of a fish such as salmon or cod, or shall we enlarge the definition and apply it to any kind of an oily taste present in butter? You will note that a Montreal exporter goes even further, and states that he thinks it is only an exaggerated term for staleness. The matter is more important from the biological than from the buyers' standpoint, because we may have a number of different living agents producing the different shades or degrees of bad flavor; for example, the causal agent of "staleness" may be entirely different from the causal agent of a true fishy taste.

I think it is reasonable to assume that fishy flavor may be imparted to butter by poor salt, probably of sea origin, and by certain small crustacea, but we may set these reasons aside, for under our conditions these are seldom, if ever, met with. Let us discuss, therefore, those most likely to occur under Ontario conditions.

I think most makers who have to make butter from gathered cream will agree with me that during the hot weather the cream received at the factory is *over-ripe.* It has quite a high degree of acidity and in many cases a secondary fermentation is commencing. The task of the maker to produce a first rate article from such raw materials becomes at once a very difficult one, for the control of the acid fermentation is beyond his control and secondary products are being formed in the butter by a variety of organisms. Even pasteurization of stale cream would not bring the best results, for many of the changes go on without the organisms, but through the agency of enzymes elaborated by them.

Such organisms as varieties of *Oidium lactis,* moulds such as *Penicillum glaucum* (the common blue green mould), *Cladosporium butyri* are all fat splitters, and such commonly found organisms as *Bacillus fluorescens,* a common organism in water, *Bacillus mesentericus* or potato bacillus, *Streptothrix ordorifera,* and many others belong to this fat splitting company, and produce undesirable flavors in butter. Another factor, which I believe gives a disagreeable fishlike flavor, is a bacterial substance known as indol, and which is produced by a number of fecal bacteria, such as the *Colon bacillus, B. lactis aerogenes,* and many others.

Tri-methylamine, which has an odor of herring brine, undoubtedly gives a disagreeable flavour to butter, which may be termed fishy. Rogers denies the statement of O'Callaghan that this substance (tri-methylamine), which is produced by *Oidium lactis,* gives rise to a fishy flavor, but we must remember that under the name *Oidium lactis* are included a large variety of organisms some of which undoubtedly produce poor flavor. I recall an instance of this:

Dr. Weigmann, the director of the Dairy Experiment Station at Kiel, and one of the leading dairy authorities in the world, prepared and sold a starter for buttermakers which contained a lactic acid organism, together with a variety of *Oidium lactis.* The combination or mixed culture gave excellent results, and a fine flavored butter, that, however, had a very limited keeping quality, which, Dr. Weigmann told me, was due to the action of the *Oidium* decomposing the butter fat, and giving rise to an undesirable flavor. Hence, he could not recommend the culture for the preparation of butter for export purposes, but only for butter which was quickly consumed. I had samples of this culture, and in some experimental work confirmed the conclusions of the German expert.

Again, Rogers states that large quantities of tri-methylamine could be worked into butter without producing any trace of fishy flavour. I believe this statement true, but find that if minute quantities are employed there is a decided fishy flavor. If one smells a bottle of 33 per cent. solution of tri-methylamine no trace of fishy flavor can be noticed, but make a large dilution by adding a drop to a cupful of water and the smell is instantly noticed even at a distance of several yards. Hence, any organism able to produce this substance (tri-methylamine) in butter may give rise to a fishy taste, and we know that many producing this substance are found frequently in butter. Recently a Japanese investigator, Tsujimoto, has found that the odor of fish oil is due almost entirely to Clupanodonic acid. This acid, by the addition of more hydrogen atoms, becomes stearic or oleic acid, and it is possible that oxidation of stearic acid or stearin and oleic acid or olein might result in the formation of clupanodonic acid and thus give a fishy flavor. This is merely an hypothesis, and may be the explanation of Rogers's surmise that "Fishy flavour is caused by a slow, spontaneous chemical change by which acid is developed and which is favored by small amounts of oxygen."

A high acid production, or the presence of lactic acid bacteria giving high-acid cream evidently is another factor which encourages secondary changes, among them a fishy flavor.

PREVENTION.—Undoubtedly, Rogers's remedy of making butter from pasteurized sweet cream prevents fishy flavor, but this remedy cannot be carried out under our present system of making butter from gathered cream.

We must either take precautions to obtain cream in better condition or use some method of treatment in the factory,

The most obvious method of improving the gathered cream is a campaign of education to show patrons the necessity of cleanliness in each detail connected with milking and separating, and the importance of immediate cooling and holding the cream at a cool temperature until it arrives at the factory. These details have been given so often that I need not enlarge on these at the present time.

The proper treatment of over-ripened cream at the factory is a more difficult question. Some recent experiments have shown that ozone may be used for deodorising stale cream. The cream is first pasteurized and then carried to an agitator and treated with ozone for 40 minutes. The cream is slightly bleached by this process and completely deodorized and the acidity reduced one half. After cooling the cream is churned into butter. Butter made by this process grades as No. 1. Such a process would have to be carefully investigated under factory conditions and the cost carefully computed before it could be adopted with certainty, but, if Ontario makers are finding it difficult to manage gathered cream successfully, and if they cannot obtain cream sufficiently sweet for the best manufacturing result, then some process such as that described would seem advisable in order to secure the best results.

MR. STEINHOFF: Do you attribute the fishy flavor to water?

DR. HARRISON: It is possible that water might produce it because there are certain organisms in many of our surface waters that will split fat if brought into contact with it. I have seen numerous instances of that.

MR. STEINHOFF: Have you made any investigations on tallow flavor in butter?

DR. HARRISON: No, but I have seen some of it; it is whitish in color and there again you have the fat splitting.

A MEMBER: I would like to inquire about the fishy flavor in creameries using ice? I have often found that in old ice you get a strong fishy smell. I had one experience of that two years ago where the ice was left over and we had to use it, and it was very strong with a fishy flavor; and if that were used in connection with butter-making it would certainly have a bad effect.

PROF. RUDDICK: There is no natural ice in New Zealand, and they have a fishy flavor there.

A MEMBER: Some creameries have a bad habit of putting ice right into the cream.

DR. HARRISON: That is a bad practice, because ice is only as pure as the water from which it is harvested; and if you harvest ice from water that is impure, the ice will be impure, and you will have a large number of organisms in that ice.

Q.—This ice is taken from the river?

A.—You will find these same organisms which would not be killed by freezing. They can stand a lot of cold. If you want to kill them, you must use hot water. If you have water of impure origin, you are bound to have trouble.

Q.—Do you think the food the cows eat has anything to do with the flavor?

A.—The only instance I know of is where they are eating in pastures and inundated marshy lands, where the sea sometimes washes across and where some of these small crustacea are left on the pastures. Salt of sea origin undoubtedly gives a fishy taste. The salt should be as fine as possible. There is a great deal of salt manufactured from the evaporation of sea water; and where that is used a fishy flavor will be found, and that is undoubtedly one of the causes of fishiness in butter.

Q.—Do you think the amount of foreign material left in the butter has anything to do with it?—the milk substances, curds, etc?

A.—There is a certain amount of curd left. You cannot wash butter so thoroughly that you will get out all the curds. There is always a certain proportion of buttermilk left in and perhaps a certain amount of it is necessary. You have to leave some substances, otherwise you would wash out all your flavor, and undoubtedly a large amount of curd or buttermilk is left in and that gives an opportunity for the bacteria to grow. They are undoubtedly protein eaters or nitrogen eaters. They do not live on fat, if they have other substances there, and the moisture helps them to grow and carry on their life for a considerable length of time.

THE FUTURE OF DAIRYING IN ONTARIO.

J. A. Ruddick, Dairy Commissioner, Ottawa.

Dr. Harrison has given us, as he always does, a very valuable and interesting paper. I was very much interested in the question of fishy butter, because when I went from Canada to New Zealand some twelve years ago that was one of the problems that was first presented to me. I used to get a good many letters from dairymen throughout the country on this subject, and one day I received a letter from a man who had reached a final conclusion. He was quite satisfied that the fishy butter was the result of the moon shining in the milk cans at night. (Laughter.)

My remarks this afternoon will follow along the same lines as my address at Kingston last week. I have been rather amused at some of the press reports that have been circulated around the country based on my remarks on that occasion. I think you have seen some of these reports, and you will agree with me that the conclusions were hardly justified by what I said. One paragraph I noticed was headed "Dairymen much alarmed because our exports are decreasing." Now I think I made it clear that there was no cause for alarm, and I hope you will see it in that way.

For Mr. Ruddick's address, refer to pages 23 to 30.

The Chairman: You have had an important address by Mr. Ruddick. It is a most peculiar state of affairs that we can ship cheese to the Old Country and sell it there cheaper than it can be bought in our own stores. I always thought there was something wrong about that. I think cheese should be sold from the factories at just a little above export prices and encourage more home consumption. I think that is a point that should be looked into in some factories which are not allowed to cut cheese. I know in my own factory I have always cut cheese, and this last season I had a very big demand for small cheese. I think the whole of September and October was taken up and I could hardly make them small enough. They wanted half cheese and quarter cheese. I do not think it is right that our cheese should be sold at the factories at 12½c. and 13½c., and the storekeeper should charge 18c. for it; I think the middleman is getting too much.

EVENING SESSION.

The Chairman first called upon Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa, who gave an address on "The Work of the Cold Storage Branch of the Department of Agriculture" at Ottawa. He gave in some detail an outline of the work which he directs and supervises.

ADDRESS.

N. W. Rowell, M.L.A., Toronto.

I regret that as one of the members for the north riding of Oxford I could not be present at the earlier sessions of this gathering, and join with the other residents and representatives of this County in extending a welcome to this very important gathering. I suppose there is a way in which a welcome may be extended that makes you feel like coming back again. There is a way in which one may say good-bye which makes you feel the same way. If I could not be here for the opening address, I hope in the closing address at least to join in the welcome already given, so that you will feel like coming back to Woodstock and Oxford County again.

I must congratulate this Association and the Association in the eastern part of the Province on the splendid work that they are doing in the dairy interests of this Province, a business which must be of increasing importance as the years go by. I have to confess that in recent years at least, I have not had very much practical experience in the dairy industry. In fact, I have to go back quite a number of years in memory to recall the time when I was an active participant in dairying work. About the earliest work I recollect doing had something to do with the dairy business and that was bringing the cows up from the pasture when milking time came, and I used to think that pasture was a very long distance from the barn; it was a long way to travel out and a long way to come back, particularly if the cows did not want to come home at milking time. I was initiated in the dairying business starting from a small boy, and I got up to the point where I did some milking myself; and I am free to confess that I did not enjoy that any better than I did bringing the cows home, particularly in the warm weather when the flies were bad. However, I suppose that is a good school in which to train one in patience and perseverance. Then I got as far as taking the milk to the cheese factory, and I thought that was more interesting because I could sit on the rig and drive and the horses did the work.

When one looks back and thinks of the conditions of the dairy industry in this Province thirty-five years ago, when I was a small boy at home on the farm, and then looks at the conditions as they exist to-day, one cannot but be struck by the advances which have been made along all lines in this very important industry.

Coming up on the train, I was thinking of the way in which the dairy industry is carried on in other countries. I remember on one occasion climbing up the mountains in Switzerland where they pasture the herds on the slopes of the mountains, and where the men had to walk from the village at the foot of the mountains and milk the cows and then carry the milk down with a kind of yoke over their shoulders, and I came to the conclusion that that was carrying on the dairy business under greater difficulties than even in my childhood days at home. Then in another part of the east, I found an improvement on that from the standpoint of the physical labor. They do not there have the cows up in the mountains and do not have to go up there to milk them. A good deal of the milk they have is goat's milk, and they drive the cow or goat along the street and when they find anybody who wants milk, they just stop and milk the cow or goat. They make the cow or goat do all the carrying of the milk. I came to the conclusion that we could hardly get the dairying business put on as easy a footing as that in this Province until you are able to milk by machinery supplied by Niagara power, and then you will have about as easy a time in carrying on the industry as these people in the east have who drive their cows and goats along the streets and supply the milk in that way.

The work which this Association and kindred organizations are doing in improving the standards and encouraging the best class of work both in buttermaking and cheesemaking and in developing the milk and cream industry is a most valuable public service to the people of the Province. I want to say this as one in the Legislature of the Province, and interested in the public life of the Province that every man engaged in the dairying industry who helps improve the grade of the commodity, who helps to produce better milking strains or devises better methods for improving sanitation or in any way contributes towards increasing the outputs or the quality, is rendering a real public service to the whole people of the Province of Ontario.

I am sure you all listened with the greatest interest to the statements of Mr. Ruddick to-night as to what the Dominion Government is doing to encourage the industry, and you have also heard what the Ontario Government is doing; but in the last analysis it rests in the hands of the people engaged in the business. It may be that both Governments can do more, but I am sure that with the hearty co-operation of those engaged in the industry and of the Government of both the Dominion and the Province, we will, in the days to come, greatly improve as well as greatly enlarge this important industry. It is a strange thing that in a country so well adapted to dairying as this Province of Ontario, we should be importing butter from distant countries, but the explanation, I suppose, is reasonable: It is simply that we have been increasing our population more rapidly than we have been increasing our production. In the Province of Ontario, the population of our cities is increasing by thousands upon thousands every year. Unfortunately in the rural parts of the Province, instead of the population increasing, we have had in the last ten years, a serious decline in population. In the older parts of the Province our rural population has declined about 100,000 in the past ten years and our urban population in the same time has increased over 350,000. You will all agree with me that the farm is the most genial atmosphere in which to develop those homely qualities of thrift, industry and honesty which lie at the very basis of the individual as well as the national character. If our cities were not recruited year by year with the strong, vigorous, moral energy that comes with the young men and women that come from the country, our cities would not be nearly as good as they are to-day, and if our country is to grow and prosper and develop along lines in which we all desire it should, we must maintain the strength, and gradually increase the number of those who live upon the land and derive their support from the land and supply the food to those who live in the cities.

Where will you find more productive soil? and where will you find natural advantages greater than we have? Where will you have a market nearer your own doors than in this Province? With all these natural advantages and with a declining rural population, we have a problem which should engage the attention of every thoughtful student, both in the Government and out of the Government, to see if by effective co-operation between the Government and the people, we cannot bring about such conditions as will make the life on the farm more remunerative and more attractive and more interesting than it is to-day compared with the counter attractions elsewhere. You cannot keep men on the farm if they think they can do better for themselves by moving elsewhere. We are suffering in Ontario to-day by the lure of the West which is drawing so many of our young men there, and we are also suffering by the attractions of the city. There is no doubt the cities are a great attraction for many of our young people. It had attractions for me, and I left the farm and went to the city. But the more I see of the city and the more closely I come in touch with city life, the more highly I value life in the country and the opportunities and chances that the boys and girls have of growing up there. I wish that my children had the opportunity of being brought up in the country as I had when a boy. They get a healthy constitution and they get habits of life which it is very difficult for a child in the city to acquire. The boy in the country has a better chance in life, because he gets a better start than the boy in the city. Everything that is really worth while in life can be had in the country, and I wish my children had the chance I had in being brought up in the country.

In addition to having the older and better settled portions of the Province, where I think we should do everything possible to make conditions of life more remunerative and attractive, we have also that great stretch of unsettled country to the north. I thought perhaps you would be interested to-night if I showed you one of the new maps that have just been issued by the Government showing the Province of Ontario as enlarged by the addition of part of Keewatin. This map is drawn to scale, and will give us some idea of what this Province of Ontario is. This little piece down here that I can cover with my hand is what we know as Old Ontario—this whole district from Ottawa to Sarnia that I can almost cover with my hand and stretching from the Lakes up to practically North Bay. The rest of the map is the balance of the Province of Ontario. It is very difficult to grasp the magnitude from a territorial standpoint of the Province in which we live. The Province of Ontario contains three times the area of Great Britain and Ireland. We have, in what is known as the Clay Belt, some sixteen to twenty millions of acres of the very best agricultural land you can find. That country should be an excellent dairying country. They can grow splendid hay crops up there and they grow magnificent roots. Those of you who had a chance of seeing the experimental car pass through here saw some of the products grown in that northern country. They have the prospect of developing mixed farming on a greater scale than in the older parts of the Province, and that is only one section of this Province of Ontario. Around Port Arthur and Kenora and Sault Ste. Marie and the Rainy River District, there are large tracts of good agricultural land, and then we have this great northern district of Patricia that they are only now exploring. You probably heard in the older days of the dispute over the boundary award. That dispute included all the territory that lies north of the

Height of Land, and as a result of the decision of the Privy Council, that territory was awarded to the Province of Ontario. The territory in dispute consisted of more than the total area of the Province before the District of Patricia was added. I only mention that in order that we may have before us the great agricultural future of the Province of Ontario. Saskatchewan will be probably the great wheat growing Province of Canada; Alberta will be mixed farming and wheat growing, but as Ontario develops, there will be no better agricultural Province in Canada, and any man who is contributing towards improving conditions in the agricultural industry is rendering a public service, because after all that industry is the backbone, the basic industry not only of this Province but of the whole Dominion.

In addition to this great extent of agricultural land, we have our timber resources and our mineral resources, and manufacturing is developing in this Province to a phenomenal degree. The growth of capital invested in the manufacturing in this Province in the last ten years, the increase in the number of employees and the increase in the output of our factories, shows us that Ontario is going to be one of the great manufacturing centres, not only for the Dominion of Canada but of this North American Continent. With all these industries and with the extent of our territory and the character of our population, strong and with high ideals of life and citizenship, we have all the natural advantages to make Ontario not only what she is to-day, the pioneer Province of the Dominion, but to make her the leader in all that is best and most worthy not only for the present, but for the days to come in this great and growing Dominion of Canada.

If by anything I say to-night I can increase the pardonable pride on your part in this Province, or increase your affection for your native Province, I will consider myself well repaid for coming up here. The future of this Province won't depend on the things I have mentioned, important as they are, but the future of this Province will depend upon the people who live here, and important as it is to improve our cattle, and important as it is to improve our horses and sheep and pigs and all kinds of stock, and important as it is to open up and settle our new country, the most important problem for the people of the Province is the type of citizenship we develop here, and each year we are being confronted with new problems and we are called upon to meet new difficulties. We are receiving a great immigration from abroad. We are glad to welcome all who come and who are prepared to make good citizens. We are twice glad to welcome those who come from the Mother Country, but we are receiving many from the continent of Europe who have not had training in the responsibilities of Government and who have not had opportunities of education such as every child in this Province has and from whom we cannot expect the same interest in public affairs and in the development of the country that we expect from our own citizens. After a few years of residence here, these newcomers have a vote, and their vote counts for one just as much as your vote or mine, and in a democratic country where the government springs from the people, our governments cannot and will not rise higher than the people. The general average of education, the general ideal, moral, social and religious, of the great mass of the people will determine the character and future of the country. And unless by a process of education, education in our schools, education from the public press and education from the public platform and education in contact with these new comers, we can raise their ideals as citizens, we will be brought down to their level. We have a great task confronting us in seeking to assimilate and bring into harmony with our Canadian and growing ideals, the men who are coming to us by hundreds and by thousands year by year. It is a task to which we should all be willing to devote our very best energies because of the love we have for the future of our own Province and the love we have for the future of this Dominion.

It is not the amount of potatoes they grow in old Ireland that makes the Irishman known wherever he goes; it is the brilliancy and versatility of the Irish genius; it is the type of citizen Ireland has produced. It is not the perseverance of the Scotchman that makes him a power and influence wherever you find a Scotchman in any part of the world, it is the schools and the churches, and the homes of Scotland that has developed a distinct type of character which makes a Scotchman a power wherever he is. It is not the manufacturing industries of Great Britain or the mines of coal or iron, important as they are to the commercial and manufacturing interests of Great Britain, that has given the Englishman the position he holds in the world to-day; it is the honesty and integrity and resourcefulness and push of the Englishman that makes him a power the world over.

I come back to the point where I started: The future of this Province will not depend so much on our resources, great and valuable as they are, as on the type of citizen we have in this Province, and let me suggest to you as I draw to a close, what should be the ideal that we should hold before us as a people in the Province of Ontario.

Mr. S. E. Facey, Esq., President-elect, Harrietsville, was then introduced and said: It affords me great pleasure, and I want to thank the directors and members of the Western Dairymen's Association for electing me to the honorable position as President of the Association. My good friend, Mr. Dempsey, in retiring from the Chair, said I had a good pedigree; I am pretty nearly a thoroughbred, but you can see from looking at me that I do not run to the beef type as he evidently does.

I am not going to take up much of your time as the evening is getting late and we have a very pleasant duty to perform. I will call upon Mr. Medd and Mr. Hastings to come on the platform.

Mr. J. A. Ruddick then presented the trophies won at the recent exhibition.

REPORT OF COMMITTEE ON RESOLUTIONS, 1913.

We have pleasure in submitting the following resolutions:

1. We the members of this Association desire to express our appreciation of the kindness of the Mayor, Council and Board of Trade of the City of Woodstock in furnishing the free use of the Opera House for the Convention and the Market Building for the Dairy Exhibition, and we also wish to thank the citizens of Woodstock for the kind reception they have given us.

2. Whereas the excellent addresses given by the various speakers have made this Convention not only successful but of much educational value, we desire to express our appreciation of their effects and extend to them our sincere thanks for their assistance.

3. The thanks of the members of this Association are extended to the press of Woodstock and other cities and towns for the excellent report written by them of this Convention.

4. That the thanks of the members of this Association are extended and hereby tendered to the Canadian Salt Co. of Windsor, Ontario, through their General Manager Mr. E. G. Henderson for the very handsome badges presented by the company to this Association.

5. That the thanks of this Association are hereby tendered to C. Richardson & Co., St. Mary's; R. M. Ballantyne, Ltd., Stratford; C. H. Slawson & Co., Ingersoll; The Heller & Mertz Co., New York; The J. B. Ford Co., Wyandotte, Mich.; Marshall Dairy Laboratory, Madison, Wis.; The Canadian Salt Co., Windsor; The Western Salt Co., Mooretown; Ryrie Bros., Toronto; The Imperial Bank of Canada and De Laval Dairy supply Co., Montreal, Que.; for the special prizes kindly donated for our dairy exhibition.

6. That as dairymen we are under great obligations to both the Ontario Department of Agriculture and the Federal Department of Agriculture, for assistance rendered the dairy industry, and we wish to express our sincere thanks and appreciation of the work done by these agricultural departments.

Moved by Mr. Ballantyne, seconded by Mr. Scott, that the report be adopted. (Motion carried.)

Convention closed by singing "God Save the King."

MEETING OF CHEESEMAKERS AND BUTTERMAKERS HELD AT GUELPH DAIRY SCHOOL.

Dec. 11th, 1912.

D. A. Dempsey, President D.A.W.O. in the chair.

In opening the meeting the chairman referred to the dairy situation for the past year, stating that it had been a remarkably good year for dairymen, there being plenty of grass all through the season, and good prospects for plenty of feed during the winter, and a period of high prices had prevailed for both butter and cheese and was likely to continue. He regretted that more of the younger dairymen were not present, as they should take every opportunity to attend such meetings in order to be educated to take the place of the older men when they dropped out of the business. However, there was a good attendance, and he was pleased to see so many present.

Question 1.—(A)—Relation of cream acidity to the loss of fat in the buttermilk. Mr. Rickwood outlined some experiments made during the past year on this point, and concluded that the higher the per cent. of acidity on the cream before pasteurization the greater the loss of fat in the buttermilk and the poorer the quality of butter.

The following table shows the results of experiments on this point:

Table No. 1

1912	Past Temp.	Time Held	Lbs. Cream	% of Fat	Acidity		Fat in Butter Milk	Score
					Raw	Ripened		
Aver. of 2 Exp. as rec'd........	180	30	349	30.1	.51	.53	.445	90.87
" 2 " High Acidity....	180	30	289.5	30.5	.68	.65	.585	89.57
Aver. of 3 Exp. as rec'd........	180	10	303	30.	.43	.5	.156	92.6
" 3 " High Acidity....	180	10	289	30.1	.7	.653	.593	87.45
Aver. of 3 Exp. as rec'd........	140	30	318	30.	.473	.516	.266	92.24
" 3 " High Acidity....	140	30	329.6	29.	.696	.64	.486	86.07
Aver. of 3 Exp. as rec'd........	140	10	321	28.5	.473	.53	.36	91.05
" 3 " High Acidity....	140	10	291	28.3	.67	.61	.32	86.7

Explanation of table 1. The cream as received was divided into two lots. One lot pasteurized at once, cooled, culture added and churned next morning. Next day the second lot was treated likewise but in the meantime the acidity had increased. The table shows the effect of the increased acidity on the per cent. of fat lost in the buttermilk, and also on the score of the butter.

Conclusions: The sweeter the cream for buttermaking the better chance the buttermaker has to control the flavor. More butter can be made from cream having a mild acid flavor than from cream with an excessive development of acid.

Q.—What is the best acidity for churning?

A.—From .45 per cent. to .5 per cent.

Mr. Rickwood: As to factors causing a variation of salt retained in the butter, the results of our experiments the past year were as follows: My aim was to account for all the salt added to the butter. The amount of salt added was known, and by using the salt test the number of pounds of salt in the butter was found, and also the amount of salt in the water in the churn after the butter was removed.

TABLE NO. 2

Lbs. salt added to churn	Lbs. salt in finished butter	Lbs. salt in water left in churn	Total lbs. salt accounted for
5.31	3.424	1.295	4.719
4.98	3.45	.61	4.06
4.29	3.156	1.048	4.204
5.77	3.36	1.54	4.9

Conclusions: The amount of water in the churn at the time of salting the butter has considerable influence on the amount of salt retained in the finished product. If we are to retain a greater amount of the salt added to the butter we must remove more of the surplus moisture by draining for a longer time. At least 20 minutes or half an hour is necessary to drain properly after washing.

Mr. Robertson thought that the size of churning had something to do with the loss of salt in butter, small churnings should have a higher per cent. of salt, soft butter also. He thought that it was beneficial to have a salt test in the creamery as well as the moisture test.

MR. T. O'FLYNN: What is the difference in over-run between salted and unsalted butter?

PROF. DEAN: From experiments conducted at the College sometime ago it was concluded that there was no difference in the over-run and that nothing was gained in weight by salting the butter.

MR. HERNS: If there is nothing gained in salting the butter, why have a salt test. My impression is that there is a gain in almost exact proportion to the amount of salt retained in the butter, provided the moisture content of both the salted and unsalted butter is the same. It would appear reasonable that if, 2½ to 3 lbs. of salt is added to 100 lbs. of butter you should get an increase in weight of that amount.

MR. MCFEETERS: From recent experiments it has been shown that there is a gain of about 2½ lbs. of butter in that which is salted against the unsalted, and anyone who is selling unsalted butter should receive at least 2 cts. per lb. more than is received for the salted butter.

MR. ROBERTSON: Saltless butter should receive at least 2 cents per lb. more than salted butter.

MR. RICKWOOD: Quoting from American journals said "That from 2 to 2½ cts. more should be obtained per lb. for unsalted butter.

MR. HERNS: It would be quite possible to buy saltless butter in solids at the market price, and by carefully working in about 3 lbs. of salt per 100 lbs. of butter to increase the gain at least 2 to 3 lbs.

The conclusion, after the discussion, reached was, that there was a difference in yield betwen salted and unsalted butter of at least 2 lbs. in favor of the salted butter, and that any creamery man selling saltless butter should receive at least 2 cents per lb. more than for the salted butter.

Note. Mr. McFeeters who conducted the experiments at the College referred to by Prof. Dean stated that at the time the experiments were made they had no rapid method of determining the moisture content of the butter, and this was perhaps why they had not been able to show any difference in yield.

Question 2.—(A) The benefits derived from passing a resolution at the annual meetings of cheese factories regarding the cooling of milk.

(B) Would a similar resolution, mentioning a standard method and temperature for cooling cream at the farm, passed at this meeting of the convention and eventually at creamery meetings, be of value.

Mr. Herns: You will remember that last year a resolution was passed including a standard temperature of 65 degrees for cooling milk at the farm to be used for cheese making. The resolution also dealt with the temperature at which the milk should be received at the factory is *i.e.* 70 degrees, and that Saturday night and Sunday morning's milk should be cooled to 60 degrees at the farm. This resolution was printed, and copies distributed at the convention in Ingersoll, and the resolution was unanimously passed. During the winter the patrons of some 27 cheese factories, after discussion, passed this resolution. A good proportion of these factories lived up to the resolution, and a great improvement was brought about in the quality of the milk during the past season. True, the season was comparatively cool except for a few weeks, but even during the warmest weather at a number of the factories where the resolution was passed the milk came in in the best condition that it had ever been received. The yield of cheese was much better and the quality improved accordingly. I wrote several of the cheese men who had been benefited through this resolution asking them to be present and tell us about it, but I do not see them here. I also asked Mr. John H. Scott to open a discussion on the B. part of this question. Mr. Scott evidently could not come.

Mr. McKenzie: Several of the factories in my group passed the resolution *re* cooling milk, and although some of them did not live up to the resolution very closely, still on the whole benefits have been derived.

Mr. Travis: At one factory where Mr. Herns attended the meeting, and the resolution was passed, the milk sent to the factory this year was never in as good condition.

Mr. Gracey: Several of the factories in my group passed the resolution, and there certainly has been a great improvement in the milk, while the yield of cheese has been much better.

Mr. Boyes: Several factories in my group passed the resolution at the annual meetings, and those that lived up to the resolution have certainly made a big change in the quality of the milk.

Mr. Herns: We would judge from what has already been said that the passing of resolutions along these lines has been of considerbale benefit, and we would like to have the views of the creamery men regarding section B.

Mr. Forrester: The greatest factor in improving the quality of the cream is in the preventing the growth of bacteria, and this can be controlled to a great extent by cooling. The Silverdale Creamery paid 3 cts. per lb. to patrons extra for sweet cream if only 3 cans in the season came sour. Paid 2 cts. per lb. bonus if only 5 cans came sour. Paid 1 cent per lb. if only 7 cans came sour.

Mr. Almont: The bonus system worked very satisfactorily at Silverdale.

Mr. Herns: We hope the time will come when cream will be paid for by grade, and in adopting some standard temperature for the cooling of cream we should keep this in mind. I believe in getting some standard in order that those speaking on the subject may all advocate the same temperature. In the past in connection with the cooling of milk the patrons were many times confused because one man advocated 55 degrees, another 60, another 70, another aeration instead of cooling; but when we get down to a standard temperature which was found to work out satisfactorily we find that the patrons are willing to adopt the method. Therefore it seems to me that if we could work out something along this line in the matter of cooling cream we could get results.

A MEMBER: If the temperature of well water is around 60 degrees it would be difficult without ice to get the cream much below this temperature.

MR. HERNS: I think that 60 degrees is not the average temperature of well water. From 46 to 52 is more like the average temperature.

MR PHILLIPS: This season I visited about 100 of my patrons and found about 30 having the cream cooled to 55 degrees or under, and practically all of these were using ice. I do not think it would be wise to advocate too low a temperature so that the patrons could not comply.

MR. FORRESTER: The haulers should have wagons with covered sides as high as the cans.

MR. SMITH: I think it would be difficult for the patrons to cool the cream much below 55 degrees.

MR. RICKWOOD: In May some cream came in at 60 degrees with an acidity of 36 per cent. while in June some came in at 60 degrees and had an acidity of .5 per cent.

MR. HERNS: It is not altogether a question of a few degrees in temperature in the cooling as much as it is in having the cream cooled *immediately* after separating. This is the important point because the more quickly the cream is cooled the more likely is it to remain sweet.

RESOLUTION.

After some further discussion it was finally moved by Mr. HERNS, seconded by J. B. SMITH that: Whereas in the opinion of this meeting some definite temperature should be established for cream sent to creamery. Be it resolved that (1) Wherever possible cream be cooled immediately after separating to a temperature of 55 degrees or lower and kept at that temperature until delivered to the cream hauler. (2) To facilitate the rapid cooling and provide a convenient method this meeting recommends the use of ice and water in an insulated tank similar to the one described in the 1912 creamery instruction circular. Carried unanimously.

MR. HERNS: I shall have this resolution printed similar to the one regarding the cooling of milk, bring copies to the convention and we will ask the convention to discuss and pass this resolution. This will give it more importance, and it can be added to our creamery circular next year.

QUESTION 3.—Would it be advisable to take a census of opinion of the patrons of cheese factories regarding the payment of milk by the test? If so, how should this be accomplished?

MR. HERNS, in opening the discussion, said: Last year at the convention this matter of getting the opinion of the patrons was mentioned, and since that time the suggestion has been repeated by several other parties. We believe that many patrons of cheese factories are in favor of the test, but when it comes to the annual meetings they are influenced by what some other patrons may say, and the matter is never definitely settled. If we are to get any legislation on this point regarding a uniform payment at every cheese factory by the test or to have any disinterested party do the testing, in my opinion we must have behind it all a strong public opinion. How we are going to get this opinion it would appear difficult.

unless we can get an expression of opinion from the people who produce the milk. After all it is the people who produce the milk who should say whether they want it paid for by the test or not. If they do not, then what is the use of continuing the agitation along this line. Simply let the matter drop, for a time at least; but if the people want the milk paid for by the test then it seems to me the other details could be worked out. We as instructors get considerable criticism from time to time by the Farm press and from other sources for not pushing this matter of the test to a greater extent, but all we can do is to try our best to educate the people in the matter of the justice of having milk paid for by the test. If at the annual meeting the majority vote it down, what more can we do?

Mr. Brodie: I quite agree with the statement that milk should be paid for by the test, and I would like to see the system adopted by every cheese factory by law if necessary. However, in regard to taking the opinion of the patrons on this point, it is just a question whether the average patron of cheese factories understands sufficiently the problems involved to give an intelligent reply to a question of this kind. They have not had sufficient training in the matter of the test, and I much doubt whether a vote of this kind would after all be of much value. However, I am not opposed to such a vote, and as the manager of a cheese factory would be quite willing to submit the matter to my patrons.

Mr. McKay: I would suggest that some sort of resolution be framed dealing with this question. There is no question but that a Government will only pass laws when public opinion is sufficiently strong that they will feel they have support. The Government is only the servants of the people, and it would appear to me that if any legislation is to be passed on this point it would be necessary to have the strong support of the milk producers who are the interested parties before such legislation could even be suggested.

Mr. Dempsey: I am strongly in favor of the test, and believe that the patrons of cheese factories would be quite satisfied to have milk paid for by the test if the casein test could be perfected so that the two, the casein and the fat test, might be worked together.

Prof. Dean: I am in favor of a ballot among the patrons of cheese factories, or, as Mr. Herns says, how are we going to know whether the people really want to have the milk paid for by the test unless we have some knowledge of their individual opinion. A ballot could be worked out something after this style. (1) Are you in favor of payment of milk by the test at your factory? (2) What test or tests do you think should be employed? (3) Would you be willing to pay for the extra work of testing?

A Delegate: What tests should be employed.

Mr. Herns: I do not think this question should probably be discussed at this particular time. The matter has been gone over so often, and no definite conclusion reached, that it would appear to me that it would be only wasting time to take it up at this meeting. What we want to get at is to find out if possible what the people think of payment by test.

RESOLUTION.

After some further discussion a resolution was moved by Mr. Jno. Brodie, seconded by Mr. Wm. Murphy of Welburn, that:

Resolved, that in the opinion of this meeting a ballot or census of opinion be taken this coming summer of the patrons of cheese factories in Western Ontario regarding the payment of milk by the test. This ballot to probably embody the following three points:

(1) Are you in favor of payment of milk at your cheese factory by the test?

(2) What method of testing do you prefer?

(3) Would you be willing to pay for the extra work of testing?

Carried unanimously.

MR. HERNS: I would like to make myself clear on this point that the passing of this Resolution does not in any way commit me to carrying it out. It is only a preliminary opinion passed by this meeting, and will likely be brought up at the Convention, and discussed there. Also the advisability of attempting this work will be discussed with the Department, and if after discussion it is believed that it would not be advisable to carry out the plan the matter will be held over for the time being at least.

MR. BRODIE suggested that there should be a place for the official testing of samples of milk and cream. Sometimes disputes arise between the producer and those doing the testing, and if some place was arranged for where these samples could be sent, it should be the proper thing.

PROF. DEAN: Each year we are constantly receiving samples of cream and milk for official testing. We have tested these and will continue to do so on payment of a small fee.

A DELEGATE: Does it not sometimes occur that patrons will get a sample of the milk or cream different from that obtained by the maker, with the result that when the sample is sent to Guelph a wide variation occurs between the test there and the test at the factory.

MR. HERNS: It certainly is not fair for patrons to send samples which are not taken at the same time that the factory sample is taken. Most certainly the samples should be of the same composition. I would think that care should be taken on this point. Composite samples of milk and cream should have the same composition after being tested at the Creamery and then sent to the College.

QUESTION 4.—Is it important to keep composite sample bottles well corked?

(*a*) At the Creamery.

(*b*) At the Cheese Factory where milk is paid for by the test.

MR. RICKWOOD: Some experiments conducted this past season on this point gave us the following results with the milk of three patrons for five months. The cream was kept in stoppered bottles as follows, and the pounds of fat shown in:

Glass stoppered, 1,415; wood corks, 1,424; ordinary corks, 1,389; paper caps, 1,422; open bottles, 1,481 lbs of fat. Average 1,412 lbs. of fat.

The following are the lbs. of fat credited to the same three patrons for the same period by testing at each delivery and by using a weekly, semi-monthly, and monthly composite sample.

Daily, 1,404; weekly, 1,409; semi-monthly, 1,399; monthly, 1,422 lbs. of fat.

These figures indicate that in paying a patron from composite samples for the amount of fat delivered according to the tests of these samples, corked under the different stoppers, the variation in the amount of fat paid for would be considerable. With the open bottle there would be more fat paid for than with any of the stoppered bottles. Taking the average quantity of fat paid for from the four stoppered bottles, *i.e.*, 1,412 lbs., and subtracting this from the fat paid for according to the test of the samples in the open bottle, the difference would be 69 lbs. fat. In other words, when the bottle was left open the patron would be credited with 69 lbs. of fat more than was delivered according to the test made from the stoppered bottle.

Mr. Herns: Mr. McMillan our creamery instructor did some experimental work on this point the past season, and his results were as follows:

July 6th, 2 samples; test 24.5 per cent.
Aug. 3rd, same samples; test 24.5 per cent. corked.
Aug. 3rd, same samples; test 25.5 per cent. uncorked.

Note: Temperature of room from 60 to 70 degrees. Atmosphere fairly moist.

No. 1.—Aug. 3rd—Sample tested 22.5 per cent.—after being kept uncorked at a temperature of 70 to 95 degrees for two weeks, tested 24.4 per cent., and at the end of four weeks same sample tested 26.8 per cent.

No. 2.—Aug. 16th—This sample tested 21 per cent.—after being kept at a temperature of 70 to 95 degrees (same as No. 1) for two weeks tested 21.6 per cent. Atmosphere dry in both cases. This sample corked.

Corks used were the ordinary wood corks such as used in Creameries. Sample bottles about half full.

Conclusions: The general conclusion was that composite samples of both milk and cream should be kept corked, if the tests were to show the quantity of fat in the milk that should be there at the end of the testing period.

Question 5.—"The importance of having the correct amount of acidity."

(*a*) In the milk at setting.

(*b*) In the whey at time of dipping.

Mr. McKay: The development of acid is one of the most important steps in cheddar cheese making, as it is the main agent used in adjusting the moisture content in the cheese. Cheese made without any development of acid would contain a very high percentage of moisture and weak body. In cheddar cheese making it is necessary to develop a certain amount of acidity and the question is how much? According to the work done at the College the past season, it is found quite possible to add the rennet to the milk when it is in a too sweet condition. If this is done there is likely to be a greater loss in the whey due to slow rennet action, though I do not consider the danger nearly so great as that of ripening the milk to too great a degree of acidity. Under the latter condition the acid acts on the solid or caseous matter dissolving it or changing it into other compounds which are not acted upon by the rennet and not recovered in the cheese. The time between setting and dipping is under these conditions shortened so that, it is impossible to get the curd properly firmed before sufficient acid has developed for dipping. When the curd is taken out of the whey in this immature condition the development of acid cannot be properly checked, as the inside of the cubes will contain too much moisture for this purpose. No matter how sweet the whey is drawn the curd may appear to firm up, and present a very good appearance; but as the cheese commences to break down or ripen, the texture will become pasty and the color fade. The acid developed during the process of cheesemaking is a splendid servant but a very poor master. We should therefore aim to keep acid development fully under control as there is a chance to check it at every step in the process; but this checking should be done before the stage is reached where the acid acts as a solvent on the curdy matter. There cannot be any hard and fast rule laid down to govern the setting point, but the milk should be set so that the curd will remain in the whey at least two and three-quarter hours from the time the rennet is added until the whey is drawn. The following table shows the effect of handling over-ripe milk.

Acidity at setting.	Time in whey.	Loss of fat in whey.	Yield of cheese per 1,000 lbs. milk.	Lbs. of milk to 1 lb. cheese.	Score cheese.
A. .22	52 min.	.22	88.63	11.28	92.49
B. .176	2 hrs. 46 min.	.17	90.83	10.89	93.31

Too much acid at the time of dipping is equally detrimental to the quality of the cheese and to the yield. As the acid acts on the curd in the same manner as in the milk. Acid is also a factor in lessening the moisture content of the cheese which also affects the yield. If, therefore, the most and best is to be made out of the milk furnished the factories, the cheese must be made as close to the sweet line as possible consistent with close texture. Three years' work on this point of acid at dipping shows that an excessive amount of acid at the dipping stage gives less cheese of a poorer quality, shown in:

Gain in lbs. of cheese per 100 lbs. of milk from comparatively sweet dipping. (*b*) Cheese: 1910, .73 lbs.; 1911, .42 lbs.; 1912, .4 lbs.

Score of cheese, 1912—(*a*) 92.24; (*b*) 93.15.

PROF. HARCOURT: The importance of having a correct amount of acid in milk at the time of setting is due to the fact that the acid has a very marked influence on the firmness of the curd. If no acid is present, it is practically impossible to get any coagulation of the milk with rennet. The same thing is found in the handling of glutens. If the gluten is washed out of flour and then treated with a water solution containing a very small amount of acid salts, it can be taken into solution. On the other hand, a large amount of acid would also take it into solution. Between these two extremes there is a point at which the gluten will be very firm. The same is true with the handling of milk. A certain amount of acid is essential to the procuring of a firm curd. Either too little or too much will not allow a proper coagulation. I do not think that so far as cheese yield is concerned, the quantity of acid in the whey and curd at the time of dipping is so important as the time of setting, and I believe that the poorer yields of cheese got from overripe milk is due primarily to the effect of the higher percentage of acid on the nature of the proteids in the milk previous to coagulation with rennet. The high acid in the curd has the effect of drying it, that is, it causes the material to shrink so that water is excluded and thus a dry curd is procured.

QUESTION 6.—The benefits derived from having a Special Instructor visit the patrons of creameries?

MR. HERNS: In opening the discussion on this point I might say that I have been agitating for two or three years the importance of having a special instructor for this work. Owing to the large territory which the Creamery Instructors have to cover it is very difficult for them to visit any large number of patrons. Mr. Smith started to work about the middle of July. An application form with a brief letter of explanation was sent out to the creamery men sometime previous. We had applications from 14 creameries. 527 patrons were visited. Of this number 296 kept the cream in the cellar, 160 in water, 16 in a milk house, 1 in refrigerator, 11 in water and ice, 12 in pans, and 31 not given. 161 or 31 per cent. washed the separators only once a day, while 303 or 65 per cent. washed the separators twice a day and 63 not given. It would appear that there is a wide field for instruction among the creamery patrons, not only to get the cream cooled, but also in the matter of washing hand separators. The money for this work was set aside from the grant of the Dominion Department to the Ontario

Department of Agriculture. I am not certain whether we can secure money for next year, but it remains with the creamery men to say whether they wish this work continued, as there would be no use employing a man unless there was sufficient work for him for the whole season.

After some further discussion, the following resolution was moved by MR. McFEETERS and seconded by MR. PHILLIPS:

RESOLUTION.

"Resolved, that in the opinion of this meeting the work of instructing creamery patrons by the employment of a Special Instructor should be continued during 1913. Carried unanimously.

QUESTION 7.—The best methods of caring for dairy machinery.

MR. HERNS: I had arranged with Mr. W. G. Medd, of Winchelsea to open the discussion on this subject, but it seems that he was unable to be present. This is a wide subject, and we know that there are many factories where the machinery seems to last very much longer than it does at others. Whether this is because the machinery is better, or because there is a different class of men, is an open question.

MR. FORRESTER suggested that each item of machinery be taken up separately.

MR. STRATTON: With reference to the churn, we keep the lid on while washing, and also think it would be better to have the churn fastened down.

MR. McFEETERS: Our buttermaker and myself do not entirely agree in the method of washing the churn. He thinks that water which is too hot is likely to soften the wood and allow the cream to get into the pores. Personally I do not think the water can be too hot for washing a churn. The hot water assists in drying the wood, but I would not advocate the steaming of a churn.

MR. ROBERTSON: I prefer three waters, first luke warm water to rinse out the salt, then hot water with Wyandotte added, and finally rinsing with boiling water. The outside of the churn to be washed with warm water and wiped dry with a cloth. The inside of the churn will dry of its own accord if the last water is boiling.

MR. TAYLOR: We use hot water near the boiling point followed by lime water. Use Wyandotte, but never washing soda, in the water.

MR. FORRESTER: A dirty boiler will consume 35 per cent. more fuel. Recommend a compound for dissolving the scale. Blow off the boiler a little each morning. Keep the valve in the steam chest tight to avoid loss of steam, and have the engine inspected by an expert occasionally.

The general impression was that steaming a churn was unnecessary if boiling water was used in the last rinsing.

QUESTION 8.—"The best method of making long keeping butter."

MR. HERNS: Since the manufacturing season consists of only several months it becomes a necessity to store sufficient butter to last us through the winter. Last year we exported some butter, but this season we have exported practically none. We hear some complaints from buyers regarding fishy flavor in stored butter. Do we know anything of the cause and remedy for this.

MR. SMITH: It seems to me that if the cream was cooled immediately after separating and kept as cool as possible that there would be very little difficulty with this flavor.

MR. T. H. LUND: I do not think the cause of fishy flavor in butter has yet been settled. Considerable investigation has been carried on in different laboratories on this point, but as yet I doubt if the real cause has been found. Some have attributed it to the salt and several other different causes. It would appear to me that the three main points to be observed in the making of long keeping butter is to have the cream of good quality, pasteurize the cream, and use a pure culture. It is astonishing the few creameries that use a culture in Western Ontario.

Mr. Herns: I would like to bring to the attention of the meeting the matter of cooling cream by the brine system. It would seem to me that before we can get the majority of creamery men to pasteurize the cream some more simple inexpensive method must be devised for cooling. Much of the cream does not get into the creamery until late in the afternoon, and to pasteurize and then cool with water and ice is a big problem. Moreover, the cooling of raw cream after it has become slightly acid and thickened is also a slow process. By the use of the brine system with either a circular or horizontal cooler the cream after pasteurization may be quickly cooled back to 45 degrees and left in the vat over night, when it should be at churning temperature in the morning without surrounding it with water and ice except on very warm evenings or during Sunday. A brine tank may be made of wood which is inexpensive, and the brine made from ice and salt with a little water may be pumped directly through the cooler with a rotary pump. Next season we expect to do some experimental work on this point at a creamery, and endeavor to find out the exact cost of cooling cream with the brine system compared with water alone and water and ice. This year we did one experiment, but this was not very satisfactory, as we were unable to handle cream with water and ice alone. However, with the brine experiment we found that 1,600 lbs. of cream at an average temperature of 80 degrees could be cooled back to 48 degrees in 35 minutes with 371 lbs. of ice.

Mr. Taylor: Do you think the brine system would be cheaper than water?

Mr. Herns: Perhaps some cases.

Mr. Richardson: When you figure the cost of pumping the water for cooling large quantities of cream there should be no doubt that with the brine system where the temperature is so much lower that although you may have to do the same amount of pumping yet the results should be much better.

Mr. A. T. Bell: The brine system of cooling was used in some of the Northwest creameries this past season, and the results have been very satisfactory indeed.

Mr. Forrester: I would suggest that the creamery take the measurement of the ice in their ice houses and figure out the cost of ice for the season.

Question 9.—"The importance of having a standard temperature for reading fat tests."

Mr. Herns: At the conference of Dairy Instructors held at Ottawa, a year ago, this matter was discussed, and a resolution was passed to the effect that the temperature of from 130 degrees to 140 degrees be adopted as a standard temperature for reading fat tests. It is just possible that some of the makers do not realize the importance of having a standard temperature for this work.

Mr. McFeeters: There is no question but what the sample bottles should be placed in water at a temperature of about 140 degrees, and kept at that temperature until read. Bottles from steam turbines would certainly give too high a reading if read directly after the test is made. On the other hand if working in a cold room the last bottles from the machine may be too cold.

After some further discussion on this point the following resolution was passed:

RESOLUTION.

Moved by MR. MCFEETERS, seconded by MR. PHILLIPS, "That whereas it is shown that it is very important that all Babcock tests be read at a standard temperature, Be it resolved that in the opinion of this meeting a temperature of from 130 to 140 degrees should be adopted for the reading of fat tests." Carried unanimously.

Question 9.—(*b*) Can a standard size cream test bottle be adopted?

MR. HERNS: As you will see by these bottles there are a number of different kinds. The 30 per cent. cream test bottles 6 in. long graduated to 1 per cent., the 6 in. 50 per cent. bottle both with an 18 gram charge, and there is also a similar 40 per cent. bottle. Some of these may be graduated in ½ per cent., but it stands to reason that with a wide diameter and a graduation of only 1 per cent. the 6 in. 50 per cent. bottle will be found very difficult to get an accurate reading of the fat tests. There is also the 6 in. 9 gram bottle of 2 different styles. One to which water may be added on account of the size of the bulb while the other one has too small a bulb for adding the water, although the 9 gram charge may be used. Although we may not be in a position at this meeting to deal with the matter we would be glad if the makers would think the matter over and be in a position to discuss this question at the next meeting, because there is no question but that we have arrived at a time when some standard cream test bottle should be adopted. It is true that many of the makers already have a stock of bottles on hand. These, however, need not be discarded, but if a standard bottle is adopted as the others are broken the standard bottle could replace them. The 9 in. 18 gram is not practical in all cases, as it does not fit the low lid machine. A special tester must be provided for these bottles.

MR. LUND: The 30 per cent. and 50 per cent. 6 in. cream test bottle graduated to 1 per cent. are made illegal in some of the United States.

In further reference to the importance of standard temperatures for fat tests, Mr. Rickwood offers the following figures regarding experiments on this point:

TEMPERATURES AT WHICH FAT TESTS WERE READ.

180 Degrees.	160 Degrees.	140 Degrees.	120 Degrees.
52.5	52.5	51.5	51.
50.	49.5	49.	48.5
51.	50.5	50.	49.5
34.	33.5	33.	32.5
24.75	24.5	24.5	24.25
32.	32.	31.5	31.5

These figures would indicate that there is a difference of from ½ to 1 per cent. too high when fat tests are read at 180 instead of 140 degrees.

The meeting then adjourned.

REPORTS OF THE DAIRY SCHOOLS, 1912-13.

DAIRY SCHOOL, ONTARIO AGRICULTURAL COLLEGE, 1913.

G. C. Creelman, B.S.A., M.S., L.L.D., *President*.

Staff of Lecturers, Demonstrators and Instructors.

H. H. Dean, B.S.A.	Professor of Dairy Husbandry
R. Harcourt, B.S.A.	Professor of Dairy Chemistry.
H. L. Fulmer, B.S.A.	Demonstrator in Dairy Chemistry.
S. F. Edwards, M.Sc.	Professor Dairy Bacteriology.
D. H. Jones, B.S.A.	Demonstrator in Dairy Bacteriology.
Alex. McKay	Instructor in Cheesemakng
G. Travis	Instructor in Cream Separators, Piping, Soldering, etc.
G. Rickwood	Instructor in Milk and Cream Testing.
M. Robertson	Instructor in Buttermaking.
Miss Belle Millar	Instructress in Farm Buttermaking, Home and Fancy Cheesemaking, Farm Dairy.
D. MacMillan	Instructor in Ice Cream Manufacture, Milk and Cream Testing and Hand Separators, Farm Dairy.

The following short Courses in Dairying were held at the Ontario Agricultural College, Guelph, during the season of 1913.

	No. Registered.
Twelve weeks course for Cheese and Butter Makers and Farm Dairymen	44
One week course for Farm Cow-testing	4
" " Ice Cream Manufacture	19
" " Official Cow-testers	25
" " Western Ontario Dairy Instructors	8
Specials:	3
Total Registration	103

The regular twelve weeks' course was conducted very similarly to those of previous years, except that once a week students were given instruction in the manufacture of ice-cream on a commercial scale. In addition, those who wished to specialize in ice cream manufacture were allowed to take the special course at the close of the regular term. The ice cream and cow testing courses proved very popular.

Those who had been engaged for official cow testing in Western Ontario were practically all present for the week, when the whole question was thoroughly discussed, rules were formulated to govern testing and as much practical work was done in the stable and in the milk testing laboratory as time would allow. At the end of the week there were practical and written examinations which covered the field as completely as possible. Out of 24 who tried the examinations, eighteen made the required 50 per cent. in order to pass. Those who have passed will be given the preference when engaging men for official cow testing. In fact, this work is now so important, that we may well consider whether or not the time is not now come, when only men of tested ability should be engaged for this work. The whole basis of official cow testing needs reorganizing, so that it may be placed beyond reproach.

It would seem as if the old line policy of cheese and butter is being rapidly changed, and dairymen must give more attention to special lines, such as town and city milk and cream trade, including ice cream, condensed milk, certified milk, fancy cheese, etc. Owing to the high price of labor and increased cost of production in all lines of farm produce, the day has gone by when thinking farmers are willing to quietly accept 80 to 90 cents per 100 lbs. for their milk.

The Dairy Schools should lead the way in more profitable lines of production and manufacture. It may be rather hard on some of the present established businesses, but these cannot stand in the way of the onward march of progress. For too long a time the farmer who produced milk has meekly accepted whatever was given him by those who controlled the manufacturing and selling end of the dairy business. But the farmer is waking from his long business sleep, and we find men asking what it costs to produce milk, and whether or not there is any money in feeding cows under conditions such as have prevailed in the past.

The sooner our Dairy Schools and all those organizations which have for their avowed object the advancement of the dairy industry, adjust themselves to the new conditions, the better it will be for the permanent and sound advancement of the greatest of all agricultural industries, namely, that of dairying.

H. H. DEAN.

EASTERN DAIRY SCHOOL, KINGSTON.

OFFICERS AND STAFF.

Director.—G. A. PUTMAN, B.S.A. Toronto.
Superintendent.—L. A. ZUFELT, Kingston.

Staff of Lecturers and Instructors.

L. A. ZUFELT	Dairy Lectures.
J. H. ECHLIN	Instructor in Cheese-making.
J. BURO	Assistant in Cheese-making.
J. F. SINGLETON	Instructor in Butter-making.
W. W. DOOL	Instructor in Separators.
R. E. ELLIOTT	Assistant in Butter-making.
D. J. CAMERON	Instructor in Milk Testing.
W. T. CONNELL, M.D.	Bacteriology
WM. NICHOLS, V.S.	Veterinary Lecturer.
W. O. WALKER, M.A.	Dairy Chemistry
J. A. CRAIG	Engineer
ETHEL LAKE	Stenographer

The School opened on December 2nd with a short course of three weeks for old makers who wished to spend a short time in general review work. Owing to the fact that most of the factories in Eastern Ontario did not cease operations till late in December, not as many of the old makers attended as was at first expected.

The regular course of instruction for students wishing to take out diplomas began on January 1st, and ended March 20th.

The total registrations for both courses were as follows:

Short course December 2nd to December 20th	24
Regular long course January 1st to March 20th	46
Total for both courses	70

Two of the short course students re-registered for the long course which makes the total attendance 68, an increase over the previous year of 19.

The total number of students who wrote on the final examinations was 28. Of this number 10 made passes, 13 obtained second standing and three passed with honors.

In addition to the regular work of instruction during the school term, considerable research work was conducted during the balance of the year, the result of which has already been summarized and placed before the public.

The demand for official supervisors for the "Record of Merit," performance of registered Holsteins is steadily growing, and at times the demand in Eastern Ontario far exceeds our supply of men available for this work, but so far we have succeeded in giving a fairly satisfactory service. The total number of cows tested for the past twelve months was 110.

At the close of the school term the plant is operated as a creamery for the balance of the year. For this service the farmers pay us 3½c. per lb. of butter. For this amount we manufacture the butter, sell the same and divide the proceeds, after deducting the 3½c. for manufacturing, among the patrons according to the amount of fat delivered.

The creamery is operated on what is known as the cream gathering system and so far this has given good results, which is borne out by the fact that our output is rapidly increasing. Further, we have no difficulty in getting the cream delivered in a perfectly sweet condition which enables us to pasteurize the same and make uniformly high quality of butter. As a rule our butter brings on an average about 2c. per lb. more than the ordinary creamery butter brought to this market.

SUMMARY OF LAST YEARS' OPERATION.

Total lbs. of butter made from April 1st to December 31st.	89,136
" value butter, cream and buttermilk	$26,418 90
" Amount paid patrons	23,352 49
Average price received per lb. of butter	.28.5
" paid patrons per lb. of fat	.31.52

ANNUAL REPORTS

OF THE

Live Stock Associations

OF THE

PROVINCE OF ONTARIO

1912

Horse Breeders' Association
Cattle Breeders' Association
Sheep Breeders' Associations
Swine Breeders' Associations

Ontario Poultry Associations
Ontario Provincial Winter Fair
Eastern Ontario Live Stock and Poultry Show

Published by the Ontario Department of Agriculture, Toronto.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1912.

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West,
TORONTO

To His Honour SIR JOHN MORISON GIBSON, Knight Commander of the Most Distinguished Order of St. Michael and St. George, a Colonel in the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of Your Honour the Report of the Live Stock Association for 1912.

Respectfully submitted,

JAMES S. DUFF,

Minister of Agriculture.

TORONTO, 1912

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Ontario Horse Breeders' Association.

ANNUAL MEETING.

The annual meeting of the Ontario Horse Breeders' Association was held at the Walker House, Toronto, on Friday evening, February 2nd, 1912.

The minutes of the last annual meeting were accepted as read.

The financial statement was presented by the Secretary and was adopted.

FINANCIAL STATEMENT.

For the year ending December 31st, 1911.

Receipts.

Cash on hand, as per last Report	$428 00	
Memberships, Canadian Clydesdale Association	195 00	
Memberships, Canadian Standard-Bred Association	15 00	
Memberships, Canadian Thoroughbred Association	15 00	
Memberships, Canadian Hackney Association	15 00	
Memberships, Canadian Shire Association	15 00	
Memberships, Canadian Pony Association	15 00	
		$698 00

Expenditures.

Printing Notices for Annual Meeting	$3 00	
Balance on hand	695 00	
		$698 00

Examined and found correct,
This 2nd day of February, 1912.

(Signed) WM. SMITH,
President.

(Signed) W. R. REEK,
Auditor.

(Signed) A. P. WESTERVELT,
Treasurer.

DIRECTORS.

The following Directors were appointed:

Canadian Clydesdale Association:

WM. SMITH, M.P., Columbus.
JOHN A. BOAG, Queensville.
JOHN BRIGHT, Myrtle Station.
GEORGE GORMLEY, Unionville.
WM. GRAHAM, Claremont.
JAMES TORRANCE, Markham.
JAS. HENDERSON, Belton.
T. H. HASSARD, Markham.
PETER CHRISTIE, Manchester.
R. E. GUNN, Beaverton.
A. E. MAJOR, Whitevale.
T. D. ELLIOTT, Bolton.
ROBERT GRAHAM, Bedford Park.
WALTER MILNE, Green River.

Canadian Shire Association: JOHN GARDHOUSE, Highfield; J. M. GARDHOUSE, Weston.

Canadian Hackney Association: WALTER RENFREW, Bedford Park; J. W. ALLISON, Morrisburg.

Canadian Thoroughbred Association: WM. HENDRIE, Hamilton; ROBERT DAVIES, Toronto.

Canadian Standard-Bred Association: O. B. SHEPPARD, Toronto; GEO. PEPPER, Toronto.

Canadian Pony Society: H. M. ROBINSON, Toronto; T. A. COX, Brantford.

Canadian Percheron Association: E. C. H. TISDALE, Beaverton; JOHN HAWTHORNE, Simcoe.

REPRESENTATIVES TO FAIRS.

Canadian National Exhibition, 1913: WM. SMITH, M.P., Columbus.

Western Fair, London: JAMES HENDERSON, Belton; GEO. CHARLTON, Duncrief.

Ontario Provincial Winter Fair: WM. SMITH, M.P., Columbus; JNO. A. BOAG, Queensville; GEO. PEPPER, Toronto; PETER CHRISTIE, Manchester.

Eastern Ontario Live Stock and Poultry Show: WM. SMITH, M.P., Columbus; JOHN BRIGHT, Myrtle Station; J. W. ALLISON, Morrisburg; ROBERT GRAHAM, Bedford Park.

It was moved, seconded and carried unanimously:—"That a meeting of the Board should be called on February 17th, at 11 a.m. at the Walker House, Toronto."

A grant of $25.00 was made to the Open Air Horse Parade.

The following resolution was passed:

"Resolved that the Secretary at once make application for the affiliation of the Ontario Horse Breeders' Association with the Canadian National Live Stock Association.

The meeting then adjourned.

Dominion Cattle Breeders' Association.

ANNUAL MEETING.

The annual meeting of the Dominion Cattle Breeders' Association was held in the Walker House, Toronto, on Wednesday, February 7th, 1912.

The President, MR. JOHN GARDHOUSE, occupied the Chair.

Moved by MR. BRIGHT, seconded by A. W. SMITH: "That the minutes of the last annual meeting be taken as read and adopted." Carried.

The Secretary submitted the financial statement for the past year.

FINANCIAL STATEMENT.

For the year ending December 31st, 1911.

Receipts.

Cash on hand, as per last Report	$618 69
Memberships:	
General	103 00
Memberships:	
Holstein-Friesian Association, 1911	150 00
Canadian Ayrshire Association, 1911	108 50
Canadian Hereford Association, 1911	28 50
Aberdeen-Angus Breeders' Association, 1911	6 50
Total	$1,015 19

Expenditures.

Directors' Expenses		$25 85
Grants, Ontario Provincial Winter Fair:		
Ayrshires, 1910	$68 00	
Ayrshires, 1911	108 50	
		176 50
Holsteins, 1910	100 00	
Holsteins, 1911	150 00	
		250 00
Herefords, 1911		28 50
Memberships Refunded		2 00
Printing		9 20
Exchange		0 15
Cash on hand		522 99
Total		$1,015 19

Examined and found correct,
This 6th day of February, 1912.

(Signed) JOHN GARDHOUSE,
President.

(Signed) W. R. REEK,
Auditor.

(Signed) A. P. WESTERVELT,
Treasurer.

Moved by MR. MACKIE and seconded, "That the financial statement be received and adopted." Carried.

The President briefly reviewed the beef cattle situation during the past year, and expressed the belief that in the near future there would be a greatly increased demand for beef cattle for breeding purposes. In concluding his remarks he paid attention to the new live stock shipping contract that is now under consideration with the following words:

"In the latter part of November, Mr. Westervelt received a letter from Mr. Walsh, Transportation Manager of the Manufacturers' Association, stating that he had received from the railway companies a draft of a new live stock shipping contract, and asked if the Associations wished to take any action. As this is something of great importance to all live stock men, Mr. Westervelt at once communicated with the Presidents of some of the Associations, and was authorized to take such action as would protect the interests of the live stock men. Following this, Mr. Westervelt consulted with Mr. Walsh, who suggested that M. K. Cowan should be engaged as counsel. We were in favor of retaining Mr. Peter White, K.C., President of the Dominion Shorthorn Breeders' Association, and it was finally arranged that Mr. White should act in conjunction with Mr. Cowan. You, together with other Associations interested, will be asked to pay an equitable proportion of the expenses. Meetings were held in Toronto on December 8th and 9th, and the new contract was fully discussed. The railways are now to prepare a new draft which will be submitted at an early date and it is hoped this will prove satisfactory. I trust that this Association will sanction the action that has been taken in this important matter."

Moved by LT.-COL. MCCRAE, seconded by MR. BRIGHT, "That this Association approves of the action taken in appointing Mr. Peter White, K.C., to represent us in connection with a new live stock shipping contract, and that we agree to pay an equitable proportion of the necessary expenses incurred in connection therewith." Carried.

Moved by Mr. A. W. Smith, seconded by H. D. Smith, "That the Secretary at once make application for the affiliation of the Dominion Cattle Breeders' Association with the Canadian Live Stock Association." Carried.

Moved by Mr. A. W. Smith, seconded by Mr. Bright, "That we co-operate with the other live stock associations in financing Association cars, the cars to be sent out at stated dates, say about the first of each of the months of January, February, March, April, May, July and October. The schedule of rates for space in the cars to remain as at present." Carried.

Moved by Mr. Bright, seconded by Lt.-Col. McCrae, "That the representatives of this Association named by the different breeding associations be hereby appointed as Directors to this Association." Carried.

DIRECTORS.

Director representing the Ontario Agricultural College: Prof. G. E. Day, Guelph.
General Director: John Gardhouse, Highfield.

Representatives to Fair Boards.

Canadian National Exhibition, 1913: John Gardhouse, Highfield.

Western Fair, 1913: A. W. Smith, Maple Lodge; A. E. Meyer, Guelph.

Central Canada Exhibition: W. A. Wallace, Kars; R. J. Mackie, Oshawa.

Ontario Provincial Winter Fair: John Gardhouse, Highfield; John Bright, Myrtle Station; W. W. Ballantyne, Stratford; R. S. Stevenson, Ancaster.

Eastern Ontario Live Stock and Poultry Show: The President; Peter White, Pembroke; J. H. Grisdale, Ottawa; W. F. Stephen, Huntingdon, Que.

The meeting then adjourned.

Dominion Sheep Breeders' Association.

ANNUAL MEETING.

The annual meeting of the Dominion Sheep Breeders' Association was held in the Temple Building, Toronto, at 9 a.m. on Friday, February 9th, 1912.

The Chair was occupied by the President Lt.-Col. D. McCrae.

The minutes of the last meeting were confirmed as printed in the annual Report.

REPORT OF THE DIRECTORS.

The following is a statement of the monthly receipts on account of sheep in 1911, including both registration and memberships:

January	$178 10	August	371 35
February	105 35	September	307 55
March	70 00	October	245 80
April	33 00	November	330 95
May	52 50	December	234 55
June	114 10		
July	118 40		$2,161 65

The following is a statement of the number of registrations, transfers and memberships received at the Record Office in 1911 from the different Provinces:

Province.	Registrations.	Transfers.	Duplicate and new certificates.	Membership paid at Ottawa.
Ontario	1,329	66	1	96
Manitoba	174	28		16
Saskatchewan	72	83		7
Alberta	145	37		9
British Columbia	49	26		6
Quebec	957	401	5	160
New Brunswick	30	2	2	5
Nova Scotia	21			1
Prince Edward Island	18	5		2
United States	61	16	9	8
	2,856	664	17	310

The number of each breed of sheep recorded in 1910 and 1911 is shown in the following statement:

	1910.	1911.
Shropshires	862	1,059
Leicesters	586	691
Oxford Downs	221	436
South Downs	23	37
Cotswolds	175	182
Lincolns	78	73
Suffolks	32	1,150
Hampshires	40	...
Dorset Horns	46	67
Cheviots	...	3

Statement of Record Office for Conducting Sheep Records, 1911.

Receipts.

From Record Committee Fund	$192 73
Balance owing to Record Committee by Association	649 78
	$842 51

Expenditures.

Salaries to December 31st, 1911	$779 44
Refunds to December 31st, 1911	58 75
Audit to December	4 32
	$842 51

The number of members of the Sheep Breeders' Association in 1911 is as follows:

Ontario	148	New Brunswick	5
Quebec	155	Nova Scotia	1
Manitoba	16	Prince Edward Island	2
British Columbia	6	United States	8
Saskatchewan	9		
Alberta	7		355

Taking the profits for the year 1911, and allowing for $1,000 balance on hand and $500 for printing the Record, there will be available for distribution among the different Provincial Associations about $1,000,—$355 of which will be memberships. The memberships will be refunded to the Provinces from which they were received. It is recommended that the balance of the $1,000, viz., $645, should be divided among the different Provincial Associations according to the number of registrations received from the Provinces in 1911, which would provide for the following amounts:

—	1911 Memberships to be Refunded.	Profits from Registration in 1911.	Total to be Refunded.
	$ c.	$ c.	$ c.
Ontario	148 00	306 70	454 70
Manitoba	16 00	40 15	56 15
Saskatchewan	9 00	16 65	25 65
Alberta	7 00	33 45	40 45
British Columbia	6 00	11 30	17 30
Quebec	155 00	220 85	375 85
Maritime Provinces	8 00	15 90	23 90

ONTARIO PROVINCIAL WINTER FAIR, 1911.

Breed.	Number of Entries.	Prizes Offered.	Prizes Paid.
		$ c.	$ c.
Cotswolds	70	175 00	175 00
Lincolns	54	175 00	173 00
Leicesters	36	175 00	156 00
Oxfords	69	175 00	175 00
Shropshires	42	175 00	169 00
Southdowns	68	175 00	175 00
Dorsets	25	148 00	141 00
Hampshires or Suffolks	17	130 00	109 00
Long Wool Grades	46	120 00	120 00
Short Wool Grades	51	120 00	120 00
	478	1,568 00	1,513 00

EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1912.

Breed.	Number of entries.	Prizes offered.	Prizes paid.
		$. c.	$. c.
Cotswolds	32	89 00	89 00
Lincolns	20	89 00	89 00
Leicesters	23	89 00	89 00
Oxfords	18	89 00	78 00
Shropshires	25	89 00	89 00
Southdowns	15	89 00	83 00
Dorset Horns	10	89 00	72 00
Hampshires and Suffolks	20	74 00	74 00
Grades	80	178 00	178 00
	243	875 00	841 00

$10.00 for Special Prize was offered.

WESTERN SHIPMENTS OF PURE-BRED LIVE STOCK.

During the past year nine cars of stock were shipped to the West, four of which were long palace horse cars. The following is a statement of receipts and expenses in connection with these cars and details as to the number and kind of animals included in each shipment:

—	Receipts.	Expenditures.
	$ c.	$ c.
February (2 cars)	498 39	533 82
March (2 cars)	554 18	610 47
April (2 cars)	495 24	520 35
June (2 cars)	400 67	490 37
November	341 95	375 30

—	Number in Each Shipment.					Total Number.
	Feb.	March.	April.	June.	Nov.	
Horses:						
Clydesdales	5	12	10	18	4	49
Standard-breds	1	....	....	....	....	1
Thoroughbreds	....	1	....	....	....	1
Shires	....	5	....	....	....	5
Hackneys	....	....	1	....	....	1
Percherons	....	....	1	....	....	1
Cattle:						
Shorthorns	8	9	11	2	3	33
Holsteins	....	2	1	2	1	6
Durhams	....	....	1	....	....	1
Aberdeen-Angus	....	....	1	1	3	5
Herefords	....	....	1	....	....	1
Jerseys	....	....	2	2	....	4
Ayrshires	....	....	....	....	1	1
Sheep:						
Leicesters	2	....	....	....	....	2
Oxfords	8	....	6	....	12	26
Southdowns	....	....	....	6	....	6
Shropshires	....	....	....	....	13	13
Suffolks	....	....	....	....	4	4
Swine:						
Yorkshires	8	....	....	....	....	8
Berkshires	2	....	1	....	3	6
Tamworths	4	....	....	....	....	4

At the end of 1910 there was a balance on hand to the credit of the cars of $124.66. At the end of 1911 there was a debit balance of$99.67. This means that the receipts in connection with the cars have been about $224.00 less than the expenses. Taking the nine cars this means that the cars have gone behind on an average of about $25.00. This is owing to the fact that the expenses of the attendant have increased the same as wages for all other class of help. It is now also necessary to purchase a return ticket for the attendant at the regular rate instead of obtaining a rate of 1 cent per mile. It will therefore be necessary either to increase the rates charged on stock included in these cars or for the various Live Stock Associations to make some arrangement to provide for any deficit which may occur.

FINANCIAL STATEMENT.

For the year ending December 31st, 1911.

Receipts.

Cash on hand, as per last Report	$1,233 33
Memberships	393 00
Registrations	1,851 65
Interest	52 60
Total	$3,530 58

Expenditures.

Directors' Expenses	$109 85
Record Office, Balance due on Expenses, 1910	525 99
Printing, General, $11.90; Records, $173.75	185 65
Rent of Hall for Annual Meeting	5 00
Miscellaneous	11 70
Cash on hand	2,692 39
Total	$3,530 58

Examined and found correct,
This 5th day of February, 1912.

(Signed) W. R. **Reek**,
Auditor.

(Signed) **David McCrae**,
President.
(Signed) A. P. **Westervelt**,
Treasurer.

Moved by **Lt.-Col. D. McCrae**, seconded by **Mr. Cousins**, "That the Report of the Directors be adopted." Carried.

Moved by **Mr. Lloyd-Jones**, seconded by **Mr. Robertson**, "That the action of the Directors with reference to co-operation with other live stock associations in financing Association Cars, and also with reference to co-operation with other live stock associations in the payment of expenses incurred in connection with the live stock shipping contract, be approved of." Carried.

Moved by **Prof. Day**, seconded by **Mr. Harding**,—

1. "That the Dominion Sheep Breeders' Association, in annual meeting assembled, desires to place on record its hearty approval of the action of the Dominion Department of Agriculture in appointing a commission to investigate the Sheep Industry."

2. "That this Association desires to compliment the members of the Commission upon the excellence of their Report.

3. "That this Association feels that there are many important recommendations and suggestions contained in said Report, which should receive the careful consideration of every farmer and sheep breeder, and especially members of the Dominion Sheep Breeders' Association."

4. "That this Association views with approval the proposal of the Dominion Department of agriculture to take active measures to develop the sheep industry along lines proposed by the Commissioners, and is willing to co-operate with the Department in this important work."

5. "In view of the fact that the present occasion does not give an opportunity for the fullest consideration of the matters contained in the Commissioner's Report, therefore, be it resolved that a Committee be appointed by this Association to co-operate with the Representatives of the Dominion Department of Agriculture in perfecting plans for carrying out the recommendations of the Commissioners, in so far as the same may be found practicable, provided that such co-operation is desired by the Dominion Department of Agriculture." Carried.

Moved by Prof. Day, seconded by Mr. Cox, "That the appointment of a Committee to co-operate with the Dominion Department of Agriculture be left in the hands of the Directors." Carried.

Moved by Lt.-Col. D. McCrae, seconded by E. Robson, "That this Association recommend and authorize the President, A. P. Westervelt, A. W. Smith and the Accountant of the National Live Stock Records, to amend the present rules governing registration with regard to transfer of stock from father to son or by direct inheritance." Carried.

The meeting was addressed by Messrs. A. W. Smith, H. S. Arkell, W. A. Dryden and W. T. Ritch.

OFFICERS AND DIRECTORS FOR 1912.

Officers.

President	Lt.-Col. D. McCrae, Guelph.
Vice-President	J. E. Cousins, Harriston.
Secretary-Treasurer	A. P. Westervelt, Toronto.

Executive Committee.

John Campbell, Woodville.
J. E. Cousins, Harriston.
Lt.-Col. D. McCrae, Guelph.
John Kelly, Shakespeare.
A. P. Westervelt, Toronto.

Directors.

Cotswolds	John Rawlings, Forest.
Leicesters	James Snell, Clinton.
Lincolns	L. Parkinson, Guelph.
Oxfords	J. A. Cerswell, Bond Head.
Shropshires	H. N. Gibson, Delaware.
Southdowns	John Jackson, Abingdon.
Dorsets	R. H. Harding, Thorndale.
Hampshires and Suffolks	John Kelly, Shakespeare.
Ontario Agricultural College	Prof. G. E. Day, Guelph.

General Directors.

John Campbell, Woodville.
Andrew Whitelaw, Guelph.

Vice-Presidents Representing the Different Provinces.

British Columbia	A. E. Davey, Ladner's, B.C.
Alberta	Bryce Wright, DeWinton, Alta.
Saskatchewan	P. M. Bredt, Regina, Sask.
Quebec	H. E. Williams, Knowlton, Que.
New Brunswick	Jas. Telfer, Markhamville, N.B.
Nova Scotia	Prof. M. Cumming, Truro, N.S.
Prince Edward Island	Albert Boswell, Charlottetown, P.E.I.

Representatives to Fair Boards.

Canadian National Exhibition, 1913: W. A. Dryden, Brooklin; A. W. Smith, Maple Lodge.

Western Fair, 1913: Lt.-Col. R. McEwen, Byron; P. H. Harding, Thorndale.

Central Canada Exhibition: N. F. Wilson, Cumberland; John Paul, Russell.

Ontario Provincial Winter Fair: A. W. Smith, Maple Lodge; John Jackson, Abingdon; Lt.-Col. R. McEwen, Byron; Robert Miller, Stouffville.

Eastern Ontario Live Stock and Poultry Show: Lt.-Col. D. McCrae, Guelph; W. A. Wallace, Kars; R. Richardson, South March; James Bryson, Brysonville, Que.

Winnipeg Industrial Exhibition: A. D. Gamley, Griswold, Man.; Geo. Allison, Burnbank, Man.

Representatives to Canadian Live Stock Association: James Snell, Clinton; J. M. Gardhouse, Weston.

The meeting then adjourned.

Ontario Sheep Breeders' Association.

ANNUAL MEETING.

The annual meeting of the Ontario Sheep Breeders' Association was held in the Temple Building, Toronto, at 2 p.m. on Friday, February 9th, 1912. The President, Lt.-Col. R. McEwen occupied the Chair.

Moved by Mr. Brien, seconded by Mr. Harding, "That the minutes of the last annual meeting be taken as read and accepted." Carried.

The financial statement was read and on motion adopted.

The Report covering the results of the first year's work at the sheep demonstration stations was submitted and adopted.

PRESIDENT'S ADDRESS.

Lieut.-Col. R. McEwen, Byron.

During the past year nothing very startling has occurred in sheep trade in this Province. The legislation for the protection of sheep from dogs which came into force a year ago, instituted in the interest of breeders of sheep, appears to be bearing good fruit, although perhaps not yet as apparent as it will be later on. So widespread a fear exists as to the depredation of dogs amongst flocks, many are unduly afraid, but it is quite within expectation that as people gradually become aware of the certainty of losses by dogs being paid for that a revival in breeding operations will be permanently established. And there are the best of reasons why a beginning should be made at once.

At the present time with such an annual increase of population there is throughout the whole Dominion positively a shortage both of beef and mutton, that while there is an increased production of wheat and dairy products, there is none whatever in beef and mutton, with the result that during the first three months of the year 1911 nearly 15,000 sheep and lambs were imported and sold on the

Toronto market. Surely with a climate adapted to their healthy and economical development, abundance of cheap pasturage and a stable and profitable market, sheep must be bred in increased numbers here. Until, however, good grade flocks are established all over the Province requiring the use of pure-bred sires in greater numbers the pure-bred business will remain on a fickle basis.

We may look, however, for some demand from our Western Provinces where the American and Australian product is now finding an outlet, but the people of this Province who have been brought up to appreciate the home grown article and have transferred their homes to the West, will not long remain content with anything of a quality short of the taste they have acquired, and this Western trade is worth looking after when it is realized that last year over 40,000 sheep and nearly 3,000,000 pounds of mutton were imported there.

Although a large and often lucrative export trade in pure-bred sheep, is, by spells, carried on with the United States, owing to various causes, it has of late been so unstable that perhaps it is a question whether on the whole it is a very profitable one, and it now appears to me that the time is opportune for breeders to develop their home trade and cultivate what can be made a good and steady market. This policy has been successfully carried out in other industries and it can be done in sheep breeding.

Moved by Mr. Telfer, seconded by Mr. Gibson, "That the report of the Directors' action covering Association cars and advertising in the West be adopted." Carried.

Moved by Mr. Lloyd-Jones and seconded, "That the Directors representing the Sheep Association on the Boards of the Ontario Provincial Winter Fair and the Eastern Ontario Live Stock and Poultry Show, be instructed to endeavor to secure considerable increase in the prize money for the sheep classes." Carried.

Moved by Mr. Telfer, seconded by Mr. Gibson, "That the Secretary at once make application for the affiliation of the Ontario Sheep Breeders' Association with the Canadian Live Stock Association." Carried.

Officers were elected as follows:

Directors.

Cotswolds	J. D. Brien, Ridgetown.
Lincolns	J. T. Gibson, Denfield.
Leicesters	James Douglas, Caledonia.
Oxfords	Harry Arkell, Teeswater.
Shropshires	J. Lloyd-Jones, Burford.
Southdowns	Lt.-Col. R. McEwen, Byron.
Dorsets	James Robertson, Milton.
Hampshires and Suffolks	Geo. Telfer, Paris.

General Directors:

D. J. Campbell, Woodville. Herbert Lee, Highgate.

Representatives to Fair Boards.

Western Fair, 1913: James Snell, Clinton; John Kelly, Shakespeare.

Central Canada Exhibition ....Jas. Underhill, Claremont.

Lt.-Col. R. McEwen was recommended as a judge of all breeds of sheep at the next Eastern Ontario Live Stock and Poultry Show.

After the appointment of expert judges and nomination of judges for exhibitions.

The meeting then adjourned.

EXPERT JUDGES.

NOMINATED FOR 1912 BY THE ONTARIO SHEEP BREEDERS' ASSOCIATION.

COTSWOLDS: **S. J. LYONS**, Norval; **J. P. FITCH**, Oriel; **JAS. UNDERHILL**, Claremont; **PROF. G. E. DAY**, Guelph; **J. V. SNELL**, Snelgrove; **D. H. MARSHALL**, Snelgrove; **GEO. ALLEN**. Burford; **JOHN RAWLINGS**, Forest; **WM. THOMPSON**, Uxbridge; **JOHN PARK**, Burgessville; **ROBERT VANCE**, Ida; **ANGUS THOMPSON**, Duart; **J. D. BRIEN**, Ridgetown; **SAM. KENNEDY**, Uxbridge; **T. HARDY SHORE**, Glanworth.

Judges nominated for Toronto: **J. D. BRIEN**, Ridgetown; (Reserve) **JAS. UNDERHILL**, Claremont.

Judges nominated for London: **J. P. FITCH**, Oriel; (Reserve) **D. H. MARSHALL**, Snelgrove.

Judge nominated for Chicago: **S. J. LYONS**, Norval.

Judges nominated for Ottawa: **L. PARKINSON**, R.R. No. 1, Guelph; (Reserve) **D. H. MARSHALL**, Snelgrove.

Judges nominated for Ontario Provincial Winter Fair, Guelph: **JNO. RAWLINGS**. Forest; (Reserve) **J. V. SNELL**, Snelgrove.

LEICESTERS: **R. J. GARBUTT**, Belleville; **JAS. FENNELL**, Bradford; **H. B. JEFFS**, Bond Head; **A. E. ARCHER**, Warwick; **GEO. WHITELAW**, Guelph; **T. HARDY SHORE**, Glanworth; **ABRAHAM EASTON**, Appleby; **E. WOOD**, Appleby; **WM. PARKINSON**, Eramosa; **E. PARKINSON**, Eramosa; **JOHN ORR**, Galt; **WM. MCINTOSH**, Burgoyne; **R. EASTWOOD**, Mimico; **JOHN KELLY**, Shakespeare; **ANDREW THOMPSON**, Fergus; **J. K. CAMPBELL**, Palmerston; **J. C. SNELL**, London; **G. B. ARMSTRONG**, Teeswater; **JOHN GIBSON**, Denfield; **C. E. WOOD**, Freeman; **J. M. GARDHOUSE**, Weston; **ANDREW WHITELAW**, Guelph; **WM. WHITELAW**, Guelph; **R. C. MARTIN**, Marysville; **A. W. SMITH**, Maple Lodge; **H. G. ARNOLD**, Maidstone; **J. W. MURPHY**, Cass City, Mich.; **PROF. CURTIS**, Ames, Ia.; **GEO. PENHALE**, Exeter; **PROF. G. E. DAY**, Guelph; **M. KENNEDY**, Northwood; **D. LILLICO**. Ayr; **JAS. DOUGLAS**, Caledonia; **FRANK SHORE**, White Oak; **JOHN GARDHOUSE**, Highfield; **WM. BEATTIE**, Wilton Grove; **A. J. MCKAY**, Ailsa Craig; **A. HASTINGS**, Crosshill; **J. HASTINGS**, Crosshill; **A. DEERING**, Crosshill; **JAS. SNELL**, Clinton; **D. A. LOFTUS**, Phillipston; **JOHN WRIGHT**, Chesley.

Judges nominated for Toronto: **JOHN ORR**, Galt; (Resreve) **G. B. ARMSTRONG**, Teeswater.

Judges nominated for London: **G. B. ARMSTRONG**, Teeswater; (Reserve) **FRANK KELLY**, Aylmer.

Judge nominated for Chicago: **JAS. SNELL**, Clinton.

Judges nominated for Ontario Provincial Winter Fair, Guelph: **JAS. DOUGLAS** Caledonia; (Reserve) **JOHN WRIGHT**, Chesley.

LINCOLNS: **JOHN GARDHOUSE**, Highfield; **LEONARD PARKINSON**, R.R. No. 1, Guelph; **ERNEST ROBSON**, Ilderton; **J. H. PATRICK**, Ilderton; **E. PARKINSON**, Eramosa: **HERBERT LEE**, Highgate; **PROF. G. E. DAY**, Guelph; **D. CAMPBELL**, Strathburn; **JOHN T. GIBSON**, Denfield; **GRAHAM WALKER**, Ilderton; **WM. OLIVER**, Avonbank; **JOHN MITCHELL**, Glencoe.

Judge nominated for Toronto: **JOHN GARDHOUSE**, Highfield.

Judge nominated for London: **L. PARKINSON**, R.R. No. 1, Guelph.

Judge nominated for Ottawa: **LEONARD PARKINSON**, R.R. No. 1, Guelph.

Judge nominated for Ontario Provincial Winter Fair, Guelph: **JOHN RAWLINGS**, Forest.

OXFORDS: **PROF. G. E. DAY**, Guelph; **J. G. ELLENTON**, Hornby; **M. T. WEIR**, Malvern; **JAS. DAVIDSON**, Teeswater; **JAS. TOLTON**, Walkerton; **R. J. HINE**, Dutton; **HENRY ARKELL**, Arkell; **WM. DICKSON**, Mildmay; **J. H. JULL**, Mt. Vernon; **W. J. ARKELL**, Teeswater; **JOHN E. COUSINS**, Harriston; **ARCH. MCKENZIE**, Corwhin; **R. E. BIRDSAL.**, Birdsall; **J. C. COOPER**, Picton; **WM. NEWMAN**, Cherry Valley; **WM. ARKELL**, Teeswater; **L. PARKINSON**, Guelph; S. C. KETCHEN, Bloomburg; W. LEE, Simcoe; PROF. M. CUMMING, Truro, N.S.; WALTER ELLIOTT, Kelso; J. E. CERSWELL, Bond Head; PROF. R. WADE, Guelph; JAS. THOMPSON, Jr., Mildmay; A. STEVENSON, Atwood.

Judges nominated for Toronto: PROF. G. E. DAY, Guelph; (Reserve) J. E. COUSINS, Harriston.

Judges nominated for London: J. E. COUSINS, Harriston; (Reserve) R. E. BIRDSALL, Birdsall.

Judge nominted for Ottawa: JOHN CAMPBELL, Woodville.

Judges nominated for Ontario Provincial Winter Fair, Guelph: J. E. COUSINS, Harriston; (Reserve) PROF. G. E. DAY, Guelph.

HAMPSHIRES AND SUFFOLKS: HENRY ARKELL, Arkell; W. H. BEATTIE, Wilton Grove; JAMES BOWMAN, Guelph; JOHN KELLY, Shakespeare; GEO. L. TELFER, Paris; PROF. G. E. DAY, Guelph; H. N. GIBSON, Delaware; W. H. ARKELL, Guelph; W. R. BOWMAN, Mt. Forest; JOHN CAMPBELL, Woodville; R. J. STONE, Stonington, Ill.; FRANK KLIENHEINTZ, Maddison, Wis.; F. C. BIGGS, West Flamboro; L. E. MORGAN, Milliken.

Judges nominated for Toronto: H. N. GIBSON, Delaware; (Reserve) GEO. TELFER, Paris.

Judges nominated for London: W. H. BEATTIE, Wilton Grove; (Reserve) JOHN JACKSON, Abingdon.

SOUTHDOWNS: JOHN JACKSON, Abingdon; W. H. BEATTIE, Wilton Grove; W. H. GIBSON, Beaconsfield, Que.; H. N. GIBSON, Delaware; ROBERT MILLER Stouffville; GEO. TELFER, Paris; J. G. HANMER, Brantford; J. C. DUNCAN, Orchard Park, N.Y.; ROBERT MCEWEN, Byron; H. L. COMPTON, Monroe, Ohio; JAMES TELFER, Markhamville, N.B.; GEO. ALLEN, Paris; E. E. MARTIN, Canning; SIMON LEMON, Kettleby; W. A. MCKERROW, Pewaukee, Wis.; W. SIMENTON, Stony Creek.

Judges nominated for Toronto: W. A. MCKERROW, Pewaukee, Wis.; (Reserve) W. SIMENTON, Stoney Creek.

Judges nominated for London: JOHN JACKSON, Abingdon; (Reserve) H. N. GIBSON, Delaware.

Judge nominated for Ottawa: GEO. TELFER, Paris.

Judge nominated for Chicago: W. H. GIBSON, Beaconsfield, Que.

DORSETS: JOHN KELLY, Shakespeare; J. M. GARDHOUSE, Weston; JOHN CAMPBELL, Woodville; J. G. HANMER, Brantford; H. N. GIBSON, Delaware; G. MCKERROW, Sussex, Wis.; JOHN JACKSON, Abingdon; R. H. HARDING, Thorndale; G. L. TELFER, Paris; JAS. ROBERTSON, Milton; W. H. BEATTIE, Wilton Grove.

Judges nominated for Toronto: J. C. DUNCAN, Lewiston, N.Y.; (Reserve) JOHN JACKSON, Abingdon.

Judges nominated for London: J. G. HANMER, Brantford; (Reserve) G. L. TELFER, Paris.

SHROPSHIRES: W. H. BEATTIE, Wilton Grove; R. MILLER, Stouffville; J. G. HANMER, Brantford; J. CAMPBELL, Woodville; D. G. HANMER, Burford; D. J. CAMPBELL, Woodville; H. N. GIBSON, Delaware; GEO. HINDMARSH, Ailsa Craig; C. W. GURNEY, Paris; J. MILLER, Brougham; H. HANMER, Burford; J. C. DUNCAN, Orchard Park, N.Y.; PROF. G. E. DAY, Guelph; A. SHIELDS, Caistorville; GEO. CRAWFORD, Minesing; J. LLOYD-JONES, Burford; W. D. MONKMAN, Bond Head; W. A. DRYDEN, Brooklin; JOHN R. KELSEY, Woodville; JNO. B. COWIESON, Queensville; THOS. M. BLACKBURN, Kettleby; THOS. HALL, Bradford.

Judges nominated for Toronto: W. A. MCKERROW, Pewaukee, Wis.; (Reserve) FRANK KLEINHEINTZ, Madison, Wis.

Judges nominated for London: GEO. HINDMARSH, Ailsa Craig; (Reserve) W. H. BEATTIE, Wilton Grove.

Judges nominated for Ottawa: W. D. MONKMAN, Bond Head; (Reserve) W. A. DRYDEN, Brooklin.

Judges nominated for Ontario Provincial Winter Fair, Guelph: H. N. GIBSON, Delaware; (Reserve) W. H. BEATTIE, Wilton Grove.
SHORT-WOOLLED GRADES: H. N. GIBSON, Delaware; W. H. BEATTIE, Wilton Grove.

FINANCIAL STATEMENT.

For the year ending December 31st, 1911.

Receipts:

Cash on hand, as per last Report	$741 57
Interest	19 50
Total	$761 07

Expenditures:

Directors' Expenses	$89 35
Medals for prizes at the Dominion Exhibition	153 00
Rent of hall for annual meeting	5 00
Cash on hand	513 72
Total	$761 07

Examined and found correct,
This 2nd day of February, 1912.

(Signed) W. R. REEK,
Auditor.

(Signed) ROBT. MCEWEN,
President.
(Signed) A. P. WESTERVELT,
Treasurer.

DIRECTORS' MEETING.

A meeting of the Directors of the Ontario Sheep Breeders' Association was held immediately at the close of the annual meeting.

There were present: Messrs. Brien, Lloyd-Jones, McEwen, Robertson, Telfer and Arkell.

The following officers were elected:

President	LT.-COL. R. MCEWEN, Byron.
Vice-President	J. D. BRIEN, Ridgetown.
Secretary-Treasurer	A. P. WESTERVELT, Toronto.

Executive Committee:

LT.-COL. R. MCEWEN, Byron.
J. D. BRIEN, Ridgetown.
J. LLOYD-JONES, Burford.
GEO. TELFER, Paris.

Moved by MR. LLOYD-JONES, seconded by MR. TELFER, "That this Association approves of the action taken in appointing Mr. Peter White, K.C. to represent us in connection with a new live stock shipping contract, and that we agree to pay an equitable proportion of the necessary expenses incurred in connection therewith." Carried.

The meeting then adjourned.

DIRECTORS' MEETING.

A meeting of the Directors of the Ontario Sheep Breeders' Association was held in the Walker House, Toronto, at 8 p.m., Thursday, February 8th, 1912.

There were present: Messrs. McEwen, Brien, Telfer, Robertson, Lee, Campbell, Robson, Lloyd-Jones, Arkell and the Secretary.

The minutes of the last Directors' Meeting were read and on motion approved of.

The financial statement was received and adopted.

Moved by MR. BRIEN, seconded by MR. LEE, "That we the Ontario Sheep Breeders' Association in order to encourage the pure-bred sheep trade with the Western Provinces recommend to the Executive Committee that they arrange to place advertising in one or more reputable Western Live Stock Journals." Carried.

Moved by MR. TELFER, seconded by MR. CAMPBELL, "That we co-operate with other Live Stock Associations in financing association cars, the cars to be sent out at stated intervals, say about the first of each of the months of January, February, March, April, May, July and October, the schedule of rates for space in the cars to remain as at present." Carried.

Moved by MR. BRIEN, seconded by MR. CAMPBELL, "That this Association approves of the action taken in appointing Mr. Peter White, K.C., to represent us in connection with a new live stock shipping contract, and that we agree to pay an equitable proportion of the necessary expenses incurred in connection therewith." Carried.

The results of the first year's work at the Sheep Demonstration Stations were submitted and adopted. The publication of the results is left in the hands of the Executive Committee.

The meeting then adjourned.

Dominion Swine Breeders' Association.

ANNUAL MEETING.

The annual meeting of the Dominion Swine Breeders' Association was held in the Temple Building, Toronto, on Wednesday, February 7th, 1912.

The President, WM. JONES, occupied the Chair.

Moved by MR. BULL, seconded by MR. HONEY, "That as the minutes of the last annual meeting have been published in the Report that they be taken as read." Carried.

The Secretary read the following report of the Directors:

REPORT OF THE DIRECTORS.

Your Directors beg to report a very satisfactory number of registrations during the past year. While the number of pedigrees reported in 1911 does not equal the number in 1910, the number exceeds very materially the registrations made in any year with the exception of 1910. About 75 per cent. more pedigrees were recorded in 1911 than in 1909.

The number of registrations for the different breeds of swine for the past three years are as follows:

——	Vol. 20.	Vol. 21.	Vol. 22.
Yorkshires	1,775	3,255	3,104
Berkshires	1,214	3,003	1,884
Chester Whites	607	914	897
Tamworths	355	446	683
Poland Chinas	61	152	187
Duroc Jerseys	44	90	119
Essex	5	11	9
Hampshires	....	176	222
	4,061	8,047	7,105

Statement of registration according to its Provinces is as follows:

Province.	Registrations.	Transfers.	Duplicate and new certificates.	Memberships paid at Ottawa.
				$ c.
Ontario	3,210	333	22	398 00
Manitoba	945	89	5	114 00
Saskatchewan	357	34	3	60 00
Alberta	525	62	2	102 00
British Columbia	179	31	1	36 00
Quebec	1,566	160	6	306 00
New Brunswick	159	11	1	24 00
Nova Scotia	78	5	....	22 00
Prince Edward Island	99	3	....	20 00
United States	18	4	....	8 00

The monthly receipts on account of the Swine Records at Ottawa are as follows:

January	$461 25	August	469 65
February	452 35	September	466 45
March	397 75	October	472 30
April	337 40	November	421 85
May	381 75	December	443 00
June	512 90		
July	513 80		$5,330 45

RECEIPTS AND EXPENDITURES FOR CONDUCTING SWINE RECORDS, 1911.

Receipts:

Received from Association to pay Salaries, 1911	$1,200 00
From Record Committee Fund	423 81
Balance owing to Record Committee by Association	113 47
Error in Charges, 1910	27 50
	$1,764 78

Expenditures:

Salaries to December 31st, 1911	$1,651 85
Refunds to December 31st, 1911	102 37
Audit to December 31st, 1911	10 56
	$1,764 78

(Signed) JOHN W. BRANT,
Accountant.

(Signed) GEO. L. BLATCH, F.C.A.,
Auditor.

GRANTS TO PROVINCIAL ASSOCIATIONS.

During the past year the following amounts have been paid to the Associations in the different Provinces. This includes the amounts owing as per last Report, and, with the exception of Ontario, the memberships received from each Province during the first nine months of 1911:

Ontario	$1,261 35	British Columbia	66 24
Quebec	605 12	Maritime Provinces	149 70
Manitoba	297 79		
Alberta	187 40		$2,732 00
Saskatchewan	164 40		

It was suggested that $1,500.00 should be divided among the different Provinces as the profits from registrations for 1911. This is the profit from registrations after providing $1,500.00 for printing the Record for 1911, and leaving a balance on hand of about $1,000.00. The memberships still to be refunded amount to $578.00, making the total to be divided among the Provincial Associations at the present time, $2,078.00.

Province.	Number of Members paid in 1911.	Number of Registrations.	Amount of Memberships.	Amount of 1911 Memberships Refunded.	Amount of 1911 Memberships to be Refunded.	Profits from Registrations.	Total Amount to be Refunded.
			$ c.	$ c.	$ c.	$ c.	$ c.
Ontario	238	3,210	476 00	....	476 00	676 45	1,152 45
Manitoba	61	945	122 00	108 00	14 00	199 15	213 15
Saskatchewan	31	357	62 00	58 00	4 00	75 25	79 25
Alberta	51	525	102 00	78 00	24 00	110 60	134 60
British Columbia	18	179	36 00	30 00	6 00	37 70	43 70
Quebec	153	1,566	306 00	258 00	48 00	330 00	378 00
New Brunswick Nova Scotia Prince Edward Island	32	336	64 00	58 00	6 00	70 85	76 85

In addition to these amounts there is $183.64 of the Ontario surplus unexpended, made up of the Ontario surplus of 1910, $178.24, with $5.40 added, being amounts not expended out of the Ontario profits for 1911. This makes the total amount available for Ontario, $1,336.09.

It is recommended that out of the profits for Ontario for 1911 amounting to $1,152.45 the following should be paid:

1. The Ontario Large Yorkshire Swine Breeders' Society, the profits from Yorkshire Registrations amounting to $503.50.

2. The Ontario Berkshire Breeders' Society, the profits from Berkshire Registrations amounting to $305.55.

3. From the balance of the profits from Ontario, amounting to $340.40, and the Ontario surplus $183.64, making a total of $527.04, there should be paid in grants to Fair Associations as follows, on condition that the prizes for swine given by these exhibitions in 1912 should be as large as in 1911:

Provincial Winter Fair	$50.00
Canadian National Exhibition	75.00
Eastern Ontario Live Stock and Poultry Show	50.00
Central Canada Exhibition	50.00
Western Fair, London	50.00

This money will be given with the understanding that the prizes for Yorkshire and Berkshire classes at these shows should not be increased out of these grants. This will still leave the Ontario surplus of $252.04.

WESTERN SHIPMENTS OF PURE-BRED LIVE STOCK.

During the past year nine cars of stock were shipped to the West, four of which cars were long palace horse cars. The following is a statement of receipts and expenses in connection with these cars, and details as to the number and kind of animals included in each shipment:

—	Receipts.	Expenditures.
	$ c.	$ c.
February 8th (2 cars)	498 39	533 82
March (2 cars)	554 18	610 47
April (2 cars)	495 24	520 35
June (2 cars)	400 67	490 37
November	341 95	375 30

—	Number in each shipment.					Total Number.
	Feb.	March.	April.	June.	Nov.	
Horses:						
Clydesdales	5	12	10	18	4	49
Standard-breds	1					1
Thoroughbreds		1				1
Shires		5				5
Hackneys			1			1
Percherons			1			1
Cattle:						
Shorthorns	8	9	11	2	3	33
Holsteins		2	1	2	1	6
Durhams			1			1
Aberdeen-Angus			1	1	3	5
Herefords			1			1
Jerseys			2	2		4
Ayrshires					1	1
Sheep:						
Leicesters	2					2
Oxfords	8		6		12	26
Southdowns				6		6
Shropshires					13	13
Suffolks					4	4
Swine:						
Yorkshires	8					8
Berkshires	2		1		3	6
Tamworths	4					4

At the end of 1910, there was a balance on hand to the credit of the cars of $124.66. At the end of 1911 there was a debit balance of $99.67. This means that the receipts in connection with the cars have been about $224.00 less than the expenses. Taking the nine cars this means that the cars have gone behind on an average of about $25.00. This is owing to the fact that the expenses of the attendant have increased, the same as wages for all other classes of help, and it is also now necessary to purchase a return ticket for the attendant at the regular rate instead of obtaining a rate of 1 cent per mile. It will, therefore, be necessary either to increase the rates charged on stock included in these cars or for the various Live Stock Associations to make some arrangement to provide for any deficit which may occur.

ONTARIO PROVINCIAL WINTER FAIR.

The following statement shows the number of entries in the classes for swine at the Winter Fair, Guelph, 1911, together with the prize money offered in each class and the amount paid:

Breed.	No. of Entries.	Prizes Offered.	Prizes Paid.
Yorkshires	61	$235.00	$230.00
Berkshires	70	211.00	211.00
Tamworths	30	133.00	133.00
Chester Whites	22	118.00	118.00
Grades or Crosses	30	104.00	104.00
Bacon Hogs	80	560.00	560.00
	293	$1,361.00	$1,356.00

EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW.

The following statement shows the number of entries in the classes for swine at the Eastern Ontario Live Stock and Poultry Show, Ottawa, 1912, together with the prize money offered in each class and the amount paid:

Breed.	No. of Entries.	Prizes Offered.	Prizes Paid.
Yorkshires	28	$113.00	$111.00
Berkshires	26	114.00	114.00
Tamworths	16	93.00	78.00
Grades or Crosses	32	93.00	93.00
Bacon Hogs	59	370.00	370.00
	161	$783.00	$766.00

FINANCIAL STATEMENT.

For the year ending December 31st, 1911.

Receipts.

Cash on hand, as per last Report	$4,780 94
Memberships	1,194 00
Registrations	4,240 45
Interest	126 25
Total	$10,341 64

Expenditures.

Directors' Expenses	$152 40
Grants, Ontario:	
Ontario Provincial Winter Fair, 1910	25 00
Ontario Provincial Winter Fair, 1911	50 00
Canadian National Exhibition, 1911	75 00
Central Canada Exhibition, 1911	50 00
Western Fair, 1911	50 00
Eastern Ontario Live Stock and Poultry Show, 1911	25 00
Ontario Large Yorkshire Breeders' Association	510 20
Ontario Berkshire Breeders' Association	470 75
Quebec Swine Breeders' Association	605 12
Manitoba Live Stock Associations	297 79
Alberta Live Stock Associations	187 40
Saskatchewan Live Stock Associations	164 40
Maritime Live Stock Associations	149 70
British Columbia Live Stock Associations	66 24
Record Office, for Salaries, 1911	1,200 00
Record Office, balance due on Expenses of 1910	114 80
Printing	1,585 40
Rent of Hall for Annual Meeting	5 00
Postage	2 00
Miscellaneous	11 75
Cash on hand	4,543 69
Total	$10,341 64

Examined and found correct,
This 6th day of February, 1912.

(Signed) Wm. Jones,
President.

(Signed) W. R. Reek,
Auditor.

(Signed) A. P. Westervelt,
Treasurer.

It was moved by the President, and seconded, "That the Report of the Directors be adopted." Carried.

Moved by Mr. Brethour, seconded by Mr. Martin, "That this Association approves of the action taken in appointing Mr. Peter White, K.C., to represent us in connection with a new Live Stock Shipping Contract, and that we agree to pay an equitable proportion of the necessary expenses incurred in connection therewith." Carried.

Delegates appointed to attend the National Live Stock Association were: R. J. Garbutt, Belleville; S. Dolson, Norval Station.

A communication was read from W. J. Stark, Secretary, Edmonton Exhibition, asking for a grant from this Association. The letter was referred to the Directors.

Moved by Mr. O'Neil, and seconded, "That the representatives of this Association to the Central Canada Exhibition and the Ontario Provincial Winter Fair, recommend that a class be added for Hampshires at these shows." Carried.

OFFICERS FOR 1912.

Pesident	Geo. Douglas, Mitchell.
Vice-President	S. Dolson, Norval Station.
Secretary	A. P. Westervelt, Toronto.

Executive Committee:

The President.
The Vice-President.
The Secretary.
J. E. Brethour.
D. DeCourcy, Bornholm.

Directors:

Berkshires	J. D. Brien, Ridgetown.
Yorkshires	J. E. Brethour, Burford.
Chester Whites	D. DeCourcy, Bornholm.
Poland Chinas and Duroc Jerseys	Mac. Campbell, Northwood.
Tamworths	A. C. Hallman, Breslau.
Essex	K. Featherston, Streetsville.
Hampshires	James O'Neil, Birr.
Ontario Agricultural College	Prof. G. E. Day, Guelph.
General Director	John Flatt, Millgrove.
Auditor	W. R. Reek, Toronto.

Representatives to Fair Boards:

Canadian National Exhibition, 1913: John Flatt, Millgrove; S. Dolson, Norval Station.

Western Fair, 1913: Geo. Douglas, Mitchell; D. DeCourcy, Bornholm.

Central Canada Exhibition: R. O. Morrow, Hilton; R. J. Garbutt, Belleville.

Ontario Provincial Winter Fair: Prof. G. E. Day, Guelph; J. E. Brethour, Burford; Wm. Jones, Zenda; R. H. Harding, Thorndale.

Eastern Ontario Live Stock and Poultry Show: Geo. Douglas, Mitchell; R. A. Heron, Billing's Bridge; J. C. Stewart, Dalmeny; R. O. Morrow, Hilton.

Moved by Mr. Brethour, seconded by Mr. Dolson, "That we co-operate with other Live Stock Associations in financing Association cars, the cars to be sent out at stated intervals, say about the first of each of the months of January, February, March, April, May, July and October; the schedule of rates for space in the cars to remain as at present." Carried.

After a revision of the list of expert judges and the making of recommendations for judges at exhibitions.

The meeting then adjourned.

EXPERT JUDGES.

EXPERT JUDGES FOR SWINE, AND JUDGES RECOMMENDED FOR EXHIBITIONS FOR 1912.

Berkshires: John Kelly, Shakespeare; J. J. Wilson, Milton; H. Mason, Scarboro; Adam Thompson, Shakespeare; James Hamilton, Shakespeare; J. C. Smith, Ottawa; X. Plaunt, Northcote; Samuel Dolson, Norval Station; Hugh G. Clark, Georgetown; P. W. Boynton, Dollar; Alex. Smith, Maple Lodge; Peter McEwen, Kertch; John Boyes, Jr., Churchill; J. C. Snell, London; Thos. Teasdale, Weston; Robert Vance, Ida; T. A. Cox, Brantford; E. E. Martin, Canning; H. B. Jeffs, Bond Head; Wm. Linton, Aurora; J. D. Brien, Ridgetown; W. A. Shields, Milton; D. J. Gibson, Bowmanville; S. J. Lyons, Norval; J. L. Clark, Norval; Aiken Dolson, Alloa; Frank Teasdale, Concord; J. Weir, Northfield Centre; J. Lawrence, Oxford Centre; Wm. Coates, Malton; H. Koelin, Glen Allan; S. Lemon, Kettleby; W. W. Brownridge, Oak Grove; H. Vanderlip, Cainsville; Ben. Patch, Georgetown; J. S. Cowan, Donegal; G. B. Wright, Wheatley.

Judges nominated for Toronto: P. J. McEwen, Kertch; (Reserve) H. B. Jeffs, Bond Head.

Judges nominated for London: J. D. Brien, Ridgetown; (Reserve) H. N. Vanderlip, Cainsville.

Judges nominated for Ottawa: H. N. Vanderlip, Cainsville; (Reserve) J. S. Cowan, Donegal.

Judges nominated for Ontario Provincial Winter Fair, Guelph: S. Dolson, Norval Station; (Reserve) T. A. Cox, Brantford.

Judge nominated for Eastern Ontario Live Stock and Poultry Show, Ottawa: W. W. Brownridge, Oak Grove.

Yorkshires and Tamworths: David Barr, Jr., Renfrew; E. A. Kipp, Chilliwack, B.C.; Geo. D. Betsner, Copetown; J. E. Brethour, Burford; Wm. Jones, Zenda; R. J.

Garbutt, Belleville; R. H. Harding, Thorndale; J. H. Simonton, Chatham; A. Elliott, Galt; L. F. Master, Haysville; A. C. Hallman, Breslau; H. Dedels, Kossuth; G. B. Hood, Guelph; Jos. Featherston, Streetsville; H. E. Sharp, Ida; Geo. Grier, Grand Valley; Jos. Stephen, Trout River, Que.; Robert Nichol, Brussels; Wm. Howe, North Bruce; Prof. G. E. Day, Guelph; H. J. Davis, Woodstock; D. C. Flatt, Millgrove; W. R. McDonald, Ridgetown; W. Elliott, Galt; R. G. Martin, Marysville; J. E. Cousins, Harriston; J. W. Callbeck, Augustine Cove, P.E.I.; J. C. Smith, Ottawa; D. Drummond, Ottawa; A. Carey, Millgrove; James Yule, East Selkirk, Man.; R. F. Duck, Port Credit; Thos. Hurley, Belleville; J. H. Grisdale, Ottawa; A. A. Colwill, Newcastle; M. Cumming, Truro, N.S.; R. O. Morrow, Hilton; Geo. Douglas, Mitchell; W. A. Trann, Cedar Grove; P. O. Collins, Bowesville; J. R. Flatt, Millgrove; J. Duck, Port Credit; Ken. Featherston, Streetsville; J. W. Black, Winnipeg, Man.; Herbert German, St. George; M. Wilson, Fergus; C. Currie, Morriston; Gus. A. Langelier, Cap Rouge, Que.; Richard Birch, Anderson; H. Koelin, Glen Allan; I. A. Snider, Floradale; J. I. Flatt, Millgrove; C. Kettle, Wilsonville; C. M. McRae, Ottawa; R. Honey, Brickley; J. C. Stewart, Dalmeny; Thos. Redman, Erindale; Prof. R. W. Wade, Guelph; Jas. Douglas, Mitchell.

Judges nominated for Toronto:

Yorkshires	J. E. Brethour, Burford.
Tamworths	A. C. Hallman, Breslau.
Bacon Hogs	J. E. Brethour, Burford. A. C. Hallman, Breslau.

Judge nominated for London:

Yorkshires and Tamworths	G. B. Hood, Guelph.

Judges nominated for Ottawa:

Yorkshires and Tamworths	R. Honey, Brickley. C. M. McRae, Ottawa.

Judges nominated for Eastern Ontario Live Stock and Poultry Show:

Yorkshires, Tamworths, Bacon Hogs and Grades	John Flatt, Millgrove.
Dressed Carcasses	Wm. Jones, Zenda.

Judges nominated for Ontario Provincial Winter Fair, Guelph:

Yorkshires and Tamworths	D C. Flatt, Millgrove.
Bacon Hogs	Prof. G. E. Day, Guelph.
Grades and Crosses	G. B. Hood, Guelph.
Dressed Carcasses	Wm. Jones, Zenda.

Hampshires.

Judges nominated for Toronto: J. C. Nichol, Hubrey; (Reserve) Mac. Campbell, Northwood.

Judges nominated for London: Geo. Douglas, Mitchell; (Reserve) Wm. Jones, Zenda.

Judges nominated for Ontario Provincial Winter Fair, Guelph: S. Dolson, Norval; (Reserve) R. J. Garbutt, Belleville.

Chester Whites, Poland Chinas, and Duroc Jerseys: E. D. George, Putnam; R. E. Birdsall, Birdsall; Albert Barachy, Bloomington; William Jones, Zenda; J. C. Snell, London; D. DeCourcy, Bornholm; R. H. Harding, Thorndale; G. B. Hood, Guelph; Gideon Snyder, Jarvis; Jos. Featherston, Streetsville; G. Bennett, Charing Cross; J. C. Nichol, Hubrey; Prof. G. E. Day, Guelph; W. E. Wright, Glanworth; Geo. Douglas, Mitchell; J. C. Smith, Hintonburg; R. J. Garbutt, Belleville.

Judges nominated for London: G. B. Hood, Guelph; (Reserve) S. Dolson, Norval.

Judges nominated for Toronto: E. D. George, Putnam; (Reserve) G. B. Hood, Guelph.

Judges nominated for Ottawa: C. M. McRae, Ottawa; (Reserve) R. Honey, Brickley.

Judges nominated for Ontario Provincial Winter Fair, Guelph: G. B. Hood, Guelph; (Reserve) Prof. G. E. Day, Guelph.

Ontario Large Yorkshire Swine Breeder's Society.

ANNUAL MEETING.

The annual meeting of the Ontario Large Yorkshire Swine Breeders' Society was held at the Walker House, Toronto, on Wednesday, February 7th, 1912.

The President, J. E. BRETHOUR, occupied the Chair.

The Secretary read the minutes of the last annual meeting.

Moved by MR. FLATT, seconded by MR. JONES, "That the minutes of the last annual meeting as read be approved of." Carried.

The financial statement was read.

Moved by MR. CHAPMAN, seconded by MR. FLATT, "That the financial statement be received and approved of." Carried.

Moved by MR. FLATT, seconded by MR. JONES, "That grants be made to exhibitions as follows:

Canadian National Exhibition	$125.00
Ontario Provincial Winter Fair	125.00
Eastern Ontario Live Stock and Poultry Show	75.00
Central Canada Exhibition	50.00
Western Fair, London	50.00
Dominion Exhibition	50.00

The resolution was carried.

Moved by MR. JONES, seconded by MR. FLATT, "That the Secretary at once make application for the affiliation of the Ontario Large Yorkshire Swine Breeders' Society with the Canadian Live Stock Association." Carried.

DIRECTORS FOR 1912.

J. E. BRETHOUR, Burford.
WM. JONES, Zenda.
R. J. GARBUTT, Belleville.
JOHN FLATT, Millgrove.
JOSEPH FEATHERSTON, Streetsville.
I. A. SNIDER, Floradale.
R. HONEY, Brickley.

The meeting then adjourned.

DIRECTORS' MEETING.

A meeting of the Directors of the Ontario Large Yorkshire Swine Breeders' Society was held immediately at the close of the annual meeting.

There were present, Messrs. Brethour, Jones, Garbutt, Flatt, Snider, and Honey.

Officers were elected as follows:
President: J. E. BRETHOUR, Burford.
Vice-President: WM. JONES, Zenda.
Secretary: A. P. WESTERVELT, Toronto.
Executive Committee: J. E. BRETHOUR, Burford; WM. JONES, Zenda; JOHN FLATT, Millgrove.

The meeting then adjourned.

Ontario Berkshire Breeders' Society.

ANNUAL MEETING.

The annual meeting of the Ontario Berkshire Breeders' Society was held at the Walker House, Toronto, on Wednesday, February 7th, 1912.

The President, E. E. Martin, was in the Chair.

The minutes of the last annual meeting were read by the Secretary.

Moved by Mr. Vanderlip, seconded by Mr. Brien, "That the minutes of the annual meeting be approved of and adopted." Carried.

The financial statement was submitted by the Treasurer.

Moved by Mr. McEwen, seconded by Mr. Dolson, "That the financial statement be accepted as read." Carried.

Moved by Mr. Cox, seconded by Mr. Cowan, "That this Association request the Winter Fair Board to arrange the swine judging programme so that both the Yorkshires and the Berkshires may be judged in the swine judging ring." Carried.

Moved by Mr. Brien, seconded by Mr. McEwen, "That the following grants be made to exhibitions:

Canadian National Exhibition	$100 00
Ontario Provincial Winter Fair	100 00
Eastern Ontario Live Stock and Poultry Show	50 00
Western Fair, London	50 00
Central Canada Exhibition	50 00

and that if a Dominion Exhibition is held the question of a grant to it should be dealt with by the Directors." Carried.

Moved by Mr. Cox, seconded by Mr. Vanderlip, "That the Secretary at once make application for the affiliation of the Ontario Berkshire Breeders' Society with the National Live Stock Association." Carried.

Directors were elected as follows: E. E. Martin, Canning; T. A. Cox, Brantford; Thos. Teasdale, Weston; S. Dolson, Norval Station; John Kelly, Shakespeare; P. J. McEwen, Kertch; W. W. Brownridge, Ashgrove; Auditor, W. R. Reek, Toronto.

It was decided that the members should support Mr. Dolson for the Vice-Presidency of the Dominion Swine Breeders' Association.

Moved by Mr. Jeffs, seconded by Mr. Dolson, "That Mr. Brien be our candidate to represent the Berkshire Breeders on the Directorate of the Dominion Swine Breeders' Association." Carried.

The meeting then adjourned.

Poultry Association of Western Ontario.

ANNUAL MEETING.

The annual meeting of the Poultry Association of Western Ontario was held in the City Hall, Guelph, on Thursday, December 14th, 1911, at 2 p.m. The President MR. R. OKE, occupied the Chair.

The minutes of the last annual meeting were read by the Secretary and on motion of Messrs. TEALE and BENNETT were adopted.

The financial statement for the year ending October 31st, 1911, was presented. Moved by MR. TEALE, seconded by MR. BARBER, "That the financial statement as read be adopted." Carried.

The President in his annual address referred to the success of the poultry industry during the past year. He dealt specially with the success of the Winter Fair Poultry Department; and also reported upon the discussion at the annual meeting of the Ontario Provincial Winter Fair with reference to the Association's request that the Association be allowed to retain the membership fees.

MR. STORK, representing the Zenner Disinfectant Co., was present at the meeting, and at his request, the President presented to Mr. W. J. Bell the silver service donated by the company for the best bird in the show.

Moved by MR. PEART, seconded by MR. BOGUE, "That our representatives again ask the Winter Fair Board to allow this Association to retain its membership fees, or in lieu of that, to increase the prizes for fowls and ducks to, 1st, $3; 2nd, $2; 3rd, 1; and for turkeys to, 1st, $4; 2nd, $3; 3rd, $2; 4th, $1; 5th, .75." Carried.

Moved by MR. JAMES, seconded by MR. HOYLE, "That the thanks of the members of this Association be expressed to the Winter Fair Board for allowing poultry exhibitors until Monday night to place their exhibits, and it is hoped the arrangement may be continued for future shows." Carried.

MR. MOUNCE asked that the prizes for dressed poultry be graded according to the number of entries in each section.

OFFICERS FOR 1912.

Honorary Presidents: HON. J. S. DUFF, Toronto; HON. NELSON MONTEITH, Stratford; L. H. BALDWIN, Toronto.

President: RICHARD OKE, London.

1st Vice-President: W. J. TEALE, Guelph.

2nd Vice President: WM. BARBER, Toronto.

DIRECTORS:

JOS. RUSSELL, Toronto.	P. L. GRIER, Owen Sound.
A. W. TYSON, Guelph.	T. J. KILEY, London.
G. G. HENDERSON, Hamilton.	MR. BOGUE.
T. H. SCOTT, St. Thomas.	C. H. WILSON, Hawkestone.

Representatives to Canadian National Exhibition: WM. MCNEIL, London; WM. BARBER, Toronto.

Representatives to Ontario Provincial Winter Fair: R. OKE, London; A. W. TYSON, Guelph; WM. MCNEIL, London; L. H. BALDWIN, Toronto.

Representatives to Western Fair, London: J. H. SAUNDERS, London; R. MCCURDY, London.

Moved by Mr. Meldrum, seconded by Mr. Wolfe, "That the Board of Directors be instructed to ask that the districts from which directors are elected be re-arranged so that the City of Hamilton and the County of Wentworth will be in the district including the County of Lincoln, etc., instead of with the County of Wellington, etc." Carried.

The meeting then adjourned.

FINANCIAL STATEMENT.

Made to the Department of Agriculture for the Province of Ontario for the year ending October 31st, 1911.

Receipts.

Members' Fees	$409 00

Expenditures.

Balance due Treasurer, as per last Report	$18 60
Memberships transferred to Winter Fair	385 45
Directors' Fees and Expenses	16 75
Total	$420 80
Balance due Treasurer	$11 80

Examined and found correct,
this 7th day of December, 1911.

W. R. Reek, *Auditor.*

Richard Oke, *President.*

A. P. Westervelt, *Treasurer.*

Eastern Ontario Poultry Association.

ANNUAL MEETING.

The annual meeting of the Eastern Ontario Poultry Association was held in the Howick Pavilion, Ottawa, on Thursday, January 18th, 1912, at 7.30 p.m. The President, Mr. Geo. Robertson, occupied the Chair.

The minutes were taken as read.

Following the address of the President, it was moved by Wm. McNeil, seconded by J. H. Warrington, "That the Ottawa Poultry Association be given a vote of thanks for the work done in connection with the Poultry Show." Carried.

Regarding the changes in the Prize List, it was suggested that a class be added for Sumatra Games, White Japanese Bantams, Partridge Rocks, also that a few more classes be added for pens.

It was moved by Mr. Oke, seconded by J. H. Warrington, "That the judging in the Poultry Classes begin on Tuesday morning at 9 o'clock. That birds be allowed to come into the exhibition any time and be judged if the classes in which they are entered were not finished judging by the time they were cooped." Carried.

It was moved by Wm. McNeil, and seconded, "That a hearty vote of thanks be tendered the management of the Show." Carried.

OFFICERS AND DIRECTORS.

Honorary Presidents	**Hon. Martin Burrell**, Minister of Agriculture, Ottawa. **Hon. Jas. Duff**, Minister of Agriculture, Toronto.
President	**Geo. Robertson**, Ottawa.
1st Vice-President	**Geo. Higman**, Sr., Ottawa.
2nd Vice-President	**John Belford**, Ottawa.
Secretary-Treasurer	**A. P. Westervelt**, Toronto.

Directors:

Jas. Baptie.
W. F. Garland.
Dr. Lambertus.
Geo. Higman, Jr.
E. C. MacDougall.
J. H. Warrington.
Jas. Snetsinger.

Representatives to the Eastern Ontario Live Stock and Poultry Show: **Geo. Robertson, Geo. Higman, Sr., John Belford, W. F. Garland.**

Representative to Central Canada Exhibition: **John Belford.**

Representative to Cnadian National Exhibition: **Wm. Barber.**

The meeting then adjourned.

Ontario Provincial Winter Fair.

ANNUAL MEETING.

The annual meeting of the Board of Directors of the Ontario Provincial Winter Fair was held in the office of the Secretary, Parliament Buildings, Toronto, on Friday, March 29th, 1912.

There were present, Messrs. Bright, McNeil, Christie, Day, Gardhouse, Ballantyne, Stevenson, A. W. Smith, McEwen, Brethour, Jones, Harding, Baldwin, Tyson, Oke, and the Secretary.

Moved by Mr. Smith, seconded by Mr. McNeil, "That as the minutes of the last annual meeting have been published they be accepted as read and adopted." Carried.

The following report of the Executive Commtitee, including the financial statement, was read by the Secretary.

REPORT OF THE EXECUTIVE.

The statement for the Exhibition of 1911 shows a surplus of over $2,000 of current receipts over current expenditures. The complete financial statement, which included the cost of erection of the Annex, shows a balance on hand of $2,988.14. There is still to be paid, however, the account for the subway under the Grand Trunk track connecting the Annex with the Winter Fair Building. This subway was constructed by the Grand Trunk Railway Company, the arrangement being, that when completed, they would forward a bill for the work at cost. Although they have been asked for their statement it has not yet been supplied The estimated cost of the subway was $3,000.

Ten thousand dollars was received as a grant from the Provincial Legislature towards the erection of the new building. At the beginning of 1911, there was on hand according to the last statement, a little over $2,100; this, together with the surplus of 1911, will be practically all used up with the expenses of the new addition when the account from the Grand Trunk Railway Company has been received and settled. If the Grand Trunk Railway account is $3,000, this will make the cost of the addition $14,291.09, all over $10,000 coming out of the surplus of the last two years. That over $4,000 was available for this purpose shows the Association to be in a good financial condition.

Owing to the Provincial elections being held on the 11th of December last, which was the first date of the exhibition, it was decided by the Executive to postpone the opening until Tuesday, December 12th. The show for 1911, therefore, was only open for four days. In 1910, the show extended over a period of five days. The attendance, according to the turnstiles, in 1910 was 36,543; in 1911 the attendance was 33,254. The gate receipts for 1910 amounted to $3,837.80; in 1911 $3,838.80. The extra admissions for 1910, however, appear to have been through extra admissions on exhibitors' attendance and complimentary tickets. The number of admissions for each day for 1910 and 1911 are as follows:

	1910.	1911.
Monday	3,443	.....
Tuesday	7,423	5,547
Wednesday	13,107	12,854
Thursday	9,965	11,807
Friday	2,605	3,046
Total	36,543	33,254

ENTRIES AND PRIZES.

The number of entries in the different classes with the prizes paid for 1910 and 1911, are as follows:

—	1910.		1911.	
	No. of Entries.	Prizes paid.	No. of Entries.	Prizes paid.
		$ c.		$ c.
Horses	251	2,890 00	271	2,905 00
Beef Cattle	222	1,931 00	154	1,545 00
Dairy Cattle	48	984 00	64	940 00
Sheep	438	1,533 00	478	1,538 00
Swine	336	1,245 00	292	1,356 00
Seeds	*148	243 00	139	237 50
"	†93	....	68	230 00
Judging	250	275 00	193	275 00
Fowls	2,933	1,692 50	2,856	1,478 75
Bantams	609	509 50	708	425 00
Turkeys	129	113 25	93	103 25
Geese	147	153 00	142	137 00
Ducks	173	126 00	162	104 50
Pigeons	443	266 75	455	262 25
Pet Stock	48	39 50	18	31 25
Utility Fowls	13	7 00	18	7 0
Sale Class	331	65 50	323	69 00
Dressed Poultry	178	268 00	273	280 00

* Open. † Special.

FINANCIAL STATEMENT.

For the year ending January 31st, 1912.

Receipts.

Balance on hand, as per last Report		$2,105 64
Legislative Grant		9,500 00
Legislative Grant for addition to Building		10,000 00
Grants to Prize List:		
Horse Breeders' Associations		1,550 00
Canadian Clydesdale Association	$1,500 00	
Canadian Shire Horse Association	50 00	
Cattle Breeders' Associations		937 00
Holstein-Friesian Association of Canada	450 00	
Dominion Shorthorn Breeders' Association	185 00	
Canadian Ayrshire Breeders' Association	110 00	
American Hereford Breeders' Association	100 00	
Canadian Hereford Breeders' Association	92 00	
Swine Breeders' Associations		275 00
Ontario Large Yorkshire Swine Breeders' Society	125 00	
Ontario Berkshire Breeders' Society	100 00	
Dominion Swine Breeders' Association	50 00	
Western Ontario Poultry Association		399 20
County Councils		200 00
Lambton County Council	75 00	
Wellington County Council	50 00	
Norfolk County Council	50 00	
Ontario County Council	25 00	
Gate Receipts		3,838 80
Entry Fees		3,991 35
Horses	536 00	
Beef Cattle	308 00	
Dairy Cattle	128 00	
Sheep	358 50	
Swine	217 00	
Seeds	34 10	
Judging Competition	146 50	
Poultry	2,263 25	
Stall Fees		215 00
Advertising in Prize Lists		350 00
Milk sold		96 33
Birds sold in Selling Class		286 50
Dressed Carcasses sold		929 25
Catalogues sold		157 02
Special Prizes for Poultry, 1910		243 50
Special Prizes for Poultry, 1911		46 00
Prize Money overpaid and refunded		43 50
Refund of Insurance on Poultry Coops		3 23
Dressed Poultry sold		2 00
Miscellaneous		8 77
		$35,178 09

Expenditures.

Directors' Expenses		$497 45
Judges and Judges' Clerks		971 50
Public Meeting and Lecturers		233 30
Block Test		112 10
Dairy Test		79 55
Office Help		205 95
General Help (including Superintendents)		1,553 58
Prizes paid		11,924 50
Horses	$2,905 00	
Beef Cattle	1,545 00	
Dairy Cattle	940 00	
Sheep	1,538 00	

Swine	1,356 00	
Seeds, Open Class	237 50	
Seeds, Canada Seed Growers' Association	230 00	
Judging Competition	275 00	
Poultry	2,898 00	
Police Service		25 00
Printing and Advertising		2,267 98
Postage and Stationery		364 50
Telegraph and Telephone		35 99
Express and Exchange		9 12
Lighting Building		269 61
Heating Building		84 57
Straw, Shavings and Poultry Feed		350 21
Milk sold		96 33
Dressed Carcasses sold		929 25
Birds sold in Selling Class		289 00
Dressed Poultry sold		2 00
Fitting Building (including lumber, bunting, and decorating)		245 30
Music		115 00
Reporting Meetings		75 00
Outside Stabling for Horse Exhibits		13 25
Entry Fees overpaid and refunded		11 50
Insurance on Poultry Coops		25 40
Freight paid for Exhibitors		43 92
Prize Money paid, 1910		11 50
Grant, National Bantam Association		50 00
New Building		11,291 09
Miscellaneous		6 50
		$32,189 95
Balance on hand		$2,988 14

Examined and found correct,
this 29th day of March, 1912.

(Signed) W. R. Reek,
Auditor.

(Signed) John Bright,
President.

(Signed) A. P. Westervelt,
Treasurer.

Moved by Mr. Bright, seconded by Mr. McNeil, "That the report of the Executive Committee be adopted." Carried.

OFFICERS FOR 1912.

Honorary President	John Bright, Myrtle Station.
President	Wm. McNeil, London.
Vice-President	Wm. Smith, Columbus.
Secretary-Treasurer	A. P. Westervelt, Toronto.

Directors:

Wm. Smith, Columbus; John A. Boag, Queensville; Geo. Pepper, Toronto; Peter Christie, Manchester; John Gardhouse, Highfield; John Bright, Myrtle Station; W. W. Ballantyne, Stratford; R. S. Stevenson, Ancaster; A. W. Smith, Maple Lodge; John Jackson, Abingdon; Lt.-Col. R. McEwen, Byron; Robert Miller, Stouffville; Prof. G. E. Day, Guelph; J. E. Brethour, Burford; Wm. Jones, Zenda; R. H. Harding, Thorndale; R. Oke, London; Wm. McNeil, London; A. W. Tyson, Guelph; L. H. Baldwin, Toronto.

Executive Committee:

Wm. McNeil, London; Wm. Smith, Columbus; Lt.-Col. R. McEwen, Byron; W. W. Ballantyne, Stratford; John Bright, Myrtle Station; Wm. Jones, Zenda; A. P. Westervelt, Toronto.

COMMITTEES:

Horses: WM. SMITH, M.P., Columbus; JOHN A. BOAG, Queensville; JOHN BRIGHT, Myrtle Station; GEO. GORMLEY, Unionville; WM. GRAHAM, Claremont; JAMES TORRANCE, Markham; JAMES HENDERSON, Belton; PETER CHRISTIE, Manchester; R. E. GUNN, Beaverton; A. E. MAJOR, Whitevale; T. D. ELLIOTT, Bolton; ROBERT GRAHAM, Bedford Park; WALTER MILNE, Green River; T. H. HASSARD, Markham; JOHN GARDHOUSE, Highfield; J. M. GARDHOUSE, Weston; WALTER RENFREW, Bedford Park; J. W. ALLISON, Morrisburg; WM. HENDRIE, Hamilton; ROBERT DAVIES, Toronto; GEO. PEPPER, Toronto; O. B. SHEPPARD, Toronto; H. M. ROBINSON, Toronto; T. A. COX, Brantford; E. C. H. TISDALE, Beaverton; JOHN HAWTHORNE, Simcoe.

Cattle: JOHN GARDHOUSE, Highfield; JOHN BRIGHT, Myrtle Station; A. W. SMITH, Maple Lodge; ARTHUR JOHNSTON, Greenwood; ROBERT MILLER, Stouffville; JOHN M. TYSON, Guelph; LT.-COL. R. MCEWEN, Byron; W. W. BALLANTYNE, Stratford; R. S. STEVENSON, Ancaster; PROF. G. E. DAY, Guelph.

Sheep: LT.-COL. R. MCEWEN, Byron; JOHN JACKSON, Abingdon; JAMES TOLTON, Walkerton; A. W. SMITH, Maple Lodge; ROBERT MILLER, Stouffville; JAMES MILLAR, Guelph.

Swine: WM. JONES, Zenda; PROF. G. E. DAY, Guelph; G. B. HOOD, Guelph; R. H. HARDING, Thorndale; J. E. BRETHOUR, Burford; JOHN BARBER, Guelph.

Dairy: W. W. BALLANTYNE, Stratford; PROF. H. H. DEAN, Guelph; R. S. STEVENSON, Ancaster; JOHN MCKEE, Norwich.

Poultry: L. H. BALDWIN, Toronto; WM. MCNEIL, London; A. W. TYSON, Guelph; W. R. GRAHAM, Guelph; R. OKE, London; W. J. TEALE, Guelph; J. H. SAUNDERS, London.

Judging Competition: PROF. G. E. DAY, Guelph; A. W. SMITH, Maple Lodge; J. E. BRETHOUR, Burford; JOHN JACKSON, Abingdon; W. W. BALLANTYNE, Stratford; ROBERT MILLER, Stouffville; R. W. WADE, Guelph; R. S. STEVENSON, Ancaster; DR. J. HUGO REED, Guelph; C. F. BAILEY, Toronto; WM. SMITH, Columbus; GEORGE PEPPER, Toronto.

Seeds: G. A. PUTNAM, Toronto; PROF. C. A. ZAVITZ, Guelph; L. H. NEWMAN, Ottawa; JOHN BARBER, Guelph; G. B. HOOD, Guelph; T. G. RAYNOR, Ottawa.

Reception Committee: DR. G. C. CREELMAN, Guelph; GEO. PEPPER, Toronto; WM. MCNEIL, London; HON. JAS. J. DUFF, Toronto; HON. NELSON MONTEITH, Stratford; JOHN BRIGHT, Myrtle Station; MAYOR THORPE, Guelph; ARTHUR JOHNSTON, Greenwood; DR. J. G. RUTHERFORD, Ottawa; A. W. SMITH, Maple Lodge; JOHN NEWSTEAD, Guelph; A. W. TYSON, Guelph; LT.-COL. R. MCEWEN, Byron; J. M. DUFF, Guelph; H. GUTHRIE, M.P., Guelph; CHAIRMAN, Reception Committee, Guelph City Council; PRESIDENT Guelph Board of Trade; H. C. SCHOFIELD, M.P.P., Guelph.
Superintendent of Buildings: D. G. HANMER, Burford.
Assistant Superintendent: J. H. SAUNDERS, London.

Moved by MR. BRIGHT, seconded by MR. TYSON, "That the dates for the next Fair be December 9th to 13th, 1912." Carried.

Moved by PROF. DAY, seconded by MR. JONES, "That the appointment of judges be left to the Executive Committee." Carried.

Moved by MR. TYSON, seconded by MR. BALDWIN, "That the Committee be requested to appoint either Mr. Rook, of Prescott, or Mr. Maunders, of Buffalo, as judge of Games and Game Bantams." Carried.

The revision of the rules and prize list was left to the Executive Committee.

PROF. DAY suggested that a rule be added to the effect that the Directors reserve the right to interpret the rules.

Moved by MR. GARDHOUSE, seconded by MR. BRETHOUR, "That the question of poultry memberships be left to the Executive Committee." Carried.

The Executive Committee was instructed to take such action as they considered advisable with reference to the admission of Farmers' Institute members.

The meeting then adjourned.

PUBLIC MEETING.

The Hon. James S. Duff, Minister of Agriculture occupied the chair at the Public Meeting held in the City Hall, Wednesday evening, December 13th. The hall was well filled, and the programme was interspersed with music supplied by Captain T. E. Robson, Musical Director, and a number of able assistants.

CHAIRMAN'S ADDRESS.

Hon. J. S. Duff, Minister of Agriculture, Toronto.

I am very glad to have the opportunity of again presiding at this annual function held in connection with the Winter Fair. Those of you who were here this afternoon will not require to be reminded of the fact that the Fair is far in excess of anything yet held under the auspices of the Winter Fair Board. The interest the people of the Province are taking in it—particularly those of Western Ontario—Guelph being very central as far as Western Ontario is concerned—is intense.

The exhibits in the different lines of live stock have come up to your expectations and have crowded the accommodation, especially the horses and the swine and poultry. In all these different lines, the exhibitors are giving you the worth of your money, and make you feel that your time is well spent in coming here to see what is going on in the live stock world. I think the situation is all that any person could desire. I do not propose to make a speech. We have a splendid programme and we are going to have an address from the Honorable Adam Beck and from Dr. Creelman, and addresses of welcome on behalf of the County of Wellington and the City of Guelph. I propose simply to discharge the duties that devolve upon me as chairman.

ADDRESSES OF WELCOME.

Mayor Thorpe: On behalf of the citizens of Guelph, I extend to you all a hearty and right royal welcome to this our royal city, and I hope your visit to the Fair will be not only a pleasant, but a profitable one, and I have no doubt it will be considering the magnificent Show that the Winter Fair has presented to us this week.

At the luncheon to-day, the President stated that they felt they would have to have further extensions. That is the old story. That has been the case ever since the beginning—extension after extension. But I am pleased to say that while the Fair has grown so has the city of Guelph. We are keeping pace with the Show. We presented the Government and the association with our Market Square, the most important square in the city, and we have also contributed many thousands of dollars in assisting to make the Fair a success. Last year, we presented them with a small park over the tracks, and also deeded them a city street to make the necessary extension for the horses, and now I learn it is not going to be large enough. I can say to you that you have not got all the streets yet. Your President hinted that they might want further room on this side of the tracks. He even stated they might ask the city for the fire hall, and I would not be surprised if in a year or so, they asked for this hall. I think you will find us ready to meet you on any reasonable proposition that you make.

Why should not the Show extend? The country is growing, and it is natural that the Show should grow, and I bespeak for it further success. The city officials and the Association have worked hand in hand to make the Show successful. Thirty years ago, the city of Guelph had their first show, and it was through that that the Association felt that Guelph was the place for it.

H. S. SCHOLFIELD, M.L.A.: The Show this year is the largest since we started. It is as large as was ever held in the Dominion of Canada. It has gone on slowly from year to year. The Government and the city of Guelph have been wise in going along slowly feeling their way. The Show has been going forward with leaps and bounds for the last few years, and the time has come when the Government will have to rise up and make it a great show. I say that from the bottom of my heart, and I say right here before the Minister of Agriculture, that whatever I am going to do when I go down to the House later on, I am going to help them to make this Show a bigger Show and a better Show than it has ever been in the past. (Applause.) The great progress this country has made has been largely through agriculture, and it must be looked after. This Show is one of the great educational features that we have in the whole Province, and we must make it larger and better by extending it as much as we possibly can.

On behalf of the City and the County, I have great pleasure in welcoming you, and thanking you for coming here this evening. (Applause.)

REPLY TO ADDRESSES OF WELCOME.

MR. WILLIAM SMITH, M.P.: We have splendid officers in connection with this Show in the persons of the President and the Secretary, and during my absence it was quietly settled that I should perform this part of the programme. I heartily agree with the remarks of the Mayor of Guelph, and I certainly endorse the position of the newly elected member of Wellington when he says he proposes to go to Toronto and worry the life out of the Minister of Agriculture so that this Show shall be greater than it has ever been before.

You have bid us welcome to the city of Guelph and to the great county of Wellington. It is scarcely necessary for you to have done so, because we knew the welcome was here before we came. (Applause.) For twelve years we have been coming backwards and forwards to Guelph, and we have seen this live stock show become greater every year, and it is now the greatest I know of in the Province of Ontario or in this Dominion of Canada. (Applause.) I do not know that it could take place in any city better than in this Royal City of Guelph in the County of Wellington, named as it is after the most illustrious and greatest of British warriors. Every member of the Royal Family who has come prominently before the people of Canada has been interested in live stock. We heartily appreciate the welcome that has been given to us in 1911, and we intend to come back year after year to accept the same kind of a welcome, and we intend to see that this Show shall continue to go forward, and not go back one single step. (Applause.)

ELECTRICITY FOR THE FARM.

Hon. Adam Beck, London.

It was a great honor that the management of the Guelph Winter Fair paid me when they invited me to address you this evening. You have come here to receive instruction and to see the best that the farms can produce, and in a social way, to see each other and talk matters over. My duty to-night is to have a heart to heart talk with you in reference to Hydro-Electric (applause), or what I might term "Electricity for the Farm."

If I could choose my own subject, I would choose the horse. While Hydro-Electric is somewhat near to my heart, I must say my first love, the horse, is very much nearer and dearer. (Applause.) You have an exhibition this year that has probably never been excelled in the Province of Ontario. We are gratified and proud of what the heavy horse is doing and of the magnificent exhibits you have at this Fair, but there is another horse that has done credit to the fair name of the Province of Ontario within the last month or so, and that is the thoroughbred, crossed with the trotter or hackney, the general purpose horse so far as riding and driving and military purposes are concerned. I speak of the horse that met in competition with the world's best at the National Horse Show in New York in November last—the hunters and jumpers and chargers. We may some day be called upon to furnish military horses for the Mother Land and if so, we should be ready when that time comes. It must be gratifying to us to know that in the twenty-three classes at the New York Show, where we were in competition with the Belgians, the best that Holland could produce, the best that England could produce; yes with the best that our cousins to the south of us could produce, Canada won twelve firsts including two championships, nine seconds, seven thirds and eight fourths. (Applause.) In fact, the Canadian exhibitors carried away more than half the prizes in twenty-three classes in which they exhibited.

Now as to my subject, Hydro-Electric Power. Let us see for a moment what has been accomplished in this movement. The people of the Province of Ontario have appropriated for all time to come one of the greatest assets, one of our wealthiest heritages when they conserved through this movement the water powers, "the white coal mines," of the Province of Ontario. What would the citizens of the United States say if an announcement were made from a public platform that the coal mines of the United States belonged to the people of that great Republic for all time to come. Such is the condition of affairs to-day in the Province of Ontario. We have retained the great "white coal mines," the water powers of the Province of Ontario, for the people for all time to come.

Now that we have finished with political strife, we should strive to make this country of ours more ideal to live in, more prosperous and more uplifting to the people. This movement was a movement of the people of the Province of Ontario, the success of which depends on the people and upon the management that would be accorded to this great undertaking by the people.

In 1900 a movement took place in the city of Toronto which was supported by the Board of Trade and in joint action on the part of the city of Toronto, the Council and Board of Control solicited ways and means to generate electricity for the usages of the people. Little headway was made for the first two or three years, but in 1902, a meeting was held in the city of Berlin, of the Manufacturers' Association, the councillors and representative bodies from all sources and the idea was conceived that not one municipality but many should undertake the development of power and the transmitting of electricity to the different municipalities for the benefit of the people. Why was this desire created on the part of the people? They knew well that this Province was devoid of coal; they knew well they were depending upon a foreign nation for their supply of coal, and if at any time that nation should place an export duty on coal, it would be a calamity to the industries of this Province. The fact is that nine-tenths of the coal required in the Province of Ontario comes from a foreign nation, and is subject to the control of the coal trusts of the United States, controlling as they do four-fifths of the coal area in the United States. It means that there is no limit to the cost of it, and no limit to the inferior quality that they may send us, and no limit to the charges the transportation companies may place on it. More than that, the coal fields of the United States will some day become depleted. We all admit that the coal is inferior to what it was, and is four times more expensive than it was originally. Silver mines we have in abundance in the Province, and copper mines and pulp wood, and they will all become depleted some day, but the water powers of the Province of Ontario, the Falls of Niagara and of the Ottawa, and of the St. Lawrence and the inland rivers, will go on forever, if we but conserve the forests and the storage that is created by these forests in the north land. What a heritage, what an asset for our children and our children's children.

Niagara Falls has come back into the possession of the people of the Province, and we can develop electricity 75 per cent. at the falls cheaper than it could be developed by any means known to man to-day;—I care not whether you do it with wood or coal or benzine or coal oil.

Electricity through the telegraph brought us in close touch with the world's market. We use electricity for the telephone and for lighting our homes and for transportation, for operating our water works, lighting our streets and it is now used on the Continent of Europe to relieve the burden of the household, yes and to relieve the burden of the farm, to make farm life more pleasant and less burdensome. What will it be in Ontario if it is of such great value on the farms on the Continent of Europe where labor is cheaper than it is here.

In a short way, I will explain to you the purpose of this undertaking. The municipalities desired assistance from the Government of Ontario and asked for the co-operation of the Government. Seven years ago, I had the honor of introducing the Bill in the House which enabled the municipalities to secure information at the cost of the Province of Ontario so as to assist them in this undertaking. A subsequent bill was put through which enabled the Government to assist the municipalities financially on a 4 per cent. basis with a sinking fund which would retire the loan at the end of thirty years. Seven municipalities first undertook the securing of information for this purpose, and the Royal City of Guelph was one of them, and has been a constant and loyal supporter of this great undertaking. (Applause.) After spending a considerable amount of money, the municipalities felt that Provincial co-operation must be secured, and I have told you that the Province finances the scheme and the municipalities provided the interest and the sinking fund. It was never proposed, and I do not think it ever will become, a direct tax upon the people either of the Province or the municipalities who have undertaken this great work, the intention being that the consumer should pay for it and the Government should finance it, and at the end of thirty years, the municipalities should own the water powers and the transmission systems.

The first object of the Commission was to transmit electricity at a very high voltage. We realized if we were to keep pace with the industries of the world and with agriculture and bring back the young men and the young women to the farm we had to have cheap electricity, and I feel justified in saying that we have succeeded in helping the municipalities to compete with the industries of the United States, so far as light and power are concerned at least. The voltage undertaken was 110,000 horse power, a voltage never attempted before in the world. We secured the best advice of the best engineers in the world. It was not our purpose to secure lucrative positions for friends, political or otherwise. Our duty was to secure the best advice and the best information in regard to this project. Suffice it to say, we have not failed nor have we been misled.

Never before has a line been built or works been constructed and equipped such as we have equipped in the Province of Ontario. We began on a solid foundation. Three corporations develop power at Niagara Falls and there was no necessity for further development. Our first purpose was to secure a supply of power. We secured an offer off hand of $12.40; an engineer made a statement that $12.00 power would never be an accomplished fact; it was a commercial impossibility, and an economical impossibility, and could not be produced and we had no right to base our estimates on $12.00 power. I can only say that after eighteen months' negotiations, we are able to offer to-day, electricity at $9.00 per horse power, and we have 100,000 horse power available. (Applause.) The lines and works have been built within the estimate.

As to the operation, we have had a few interruptions, but nothing compared to what we anticipated when we undertook this project. I think we can say the operation is satisfactory to the municipalities, the cost is satisfactory, and the whole project has been satisfactory. There is no controversy between the supplier of power and the user of power.

What have we done in the way of saving to the people? You know that electricity has been sold at a price equal to the price of that which was generated by steam; it was no advantage to the people of Hamilton or Ottawa to have it generated by water power. At Ottawa with the river going through the heart of the city, they were paying 15c. per kilowat hour, while we in London were paying 10c.; and Hamilton right at the door of the great DeCew Falls, the cheapest power development on this continent, were paying 10c. and 12c., while we in London were only paying 10c. and our power was generated by steam. It was reduced in Ottawa to 7 1-5c., and power is reduced to $25 and $30 per horse power, and lights were reduced from $65 to $45 per lamp.

The surplus for the first three years was $18,000; the second year $23,000 and the last year $31,000—over $70,000 of a surplus in three years. (Applause.) The saving to the user in Ottawa is over $270,000 a year. The city of Toronto has made a saving to the users of the power of over half a million dollars per annum. In Hamilton they save from two to three hundred thousand dollars per annum, and the city of London has saved $150,000. If you take the thirty different municipalities that we are supplying, I am safe in saying that the $4,000,000 invested by the Province with $4,000,000 or $5,000,000 invested by the municipalities, has saved the users of power $2,000,000 dollars per annum—or say ten millions in five years. The whole of this investment will have been made out of the savings of the people in the reduction of rates. What does that mean? The Toronto *Globe*, editorially, a short time ago, said, "The reduction effected in rates will more than pay the whole investment in a very few years," if not one horse power was transmitted over the line, so we can at once say this project is a success. (Applause.)

While we have saved such an enormous amount to the people of the Province, we have also conserved the water powers in the Province for the people. This power is sold to the people at cost price, and it means power not only to the cities but to the village and to the unincorporated village, the police village; yes, and it means power to many of the farmers of the Province of Ontario.

We come now to the matter in which you are most directly interested and that is electricity on the farm. Let me say in the beginning that I am not prepared to say that all the farms in the Province will have electricity sufficiently cheap to take the place of the gasoline engine, but we do know that with the development of the local water powers, that we will be able to supply power to many farmers of the Province, and I could not begin to tell you the great benefit it is going to be. (Applause.)

I had the pleasure of visiting the continent of Europe in connection with this project, six months ago. I was accompanied by our engineers and one of the experts of the Agricultural Department of the Province of Ontario, and we saw how the people in that land made use of everything. How they conserve everything, and how they deal with everything from an economical standpoint. On their farms, weeds are almost in unknown quantities. The thrift and economy which they practise is not practised in this country. I had occasion to suggest to some of the people over there that they should come to this country and acquire large tracts of land. I suggested this to many of the people in France, Belgium, Switzerland, Austria, Italy and Germany, but you could not convince them that it would be a benefit. They had ingenuity and the business thrift, and the mechanical education to enable them to succeed in the work they are doing over there. It is the machinery that makes the farm a paying undertaking to-day, the same as it is with any other industry. It is business methods that makes farming one of the finest and most paying industries, and over in Europe, we saw it in its full bloom and we want that here, and I believe you are acquiring it with such institutions as the Agricultural College, presided over by Dr. Creelman, and such institutions as the Women's Institutes and the Farmers' Institutes, educating the people of the Province of Ontario and carrying this education to the farm houses. I say "Help the industries, help the manufacturers and give them protection, but do all you can for the greatest industry of all—and that is the agricultural industry of the Province of Ontario." (Applause.)

What can you do with power on the farm? You may cook, you may heat, you may operate all the machinery on the farm, whether it be a plow, a harrow, a reaper, a mower, or the modest cream separator, the washing machine, the iron, the sewing machine, to light up your farm, or to do the milking.. We saw plowing done by electricity. We saw twenty-three acres plowed in a day. It was very simple and not too expensive. We saw cooking in the household in all its features, and I am glad to tell you that we are more advanced in this country in cooking appliances than they are over there. We are very much further advanced than they are in the method of supplying electricity to the people. In Germany, the principle is that the company generate electricity and power, and bodies of farmers and communities of farmers form associations and finance the undertaking themselves. They have to build the transmission line to the village and they have to operate it.

In Germany the farmers live in small communities and villages, and it makes it less expensive to distribute electricity. We have electricity at half the cost to begin with, but our labor is double the cost that it is there. If we save a man, it is like saving two, and I cannot see why this country should not have as great a benefit so far as the farmers are concerned as they do in Europe. I am not prepared to say that you will be able to plow by electricity in the very near future because your fields may not be as large as they are in Europe; yet electricity is cheaper here than there and I cannot see any reason why you should not get plows and apparatus necessary to do the work. I saw threshing by electricity in all its stages. In Germany in one village, we saw a large threshing machine under cover, and attached to it was a fanning machine. The farmers there have from twenty-five to thirty acres and they have not a large enough threshing to have it done on their own farms and they take their barley or rye or wheat to the threshing machine which was owned by them in a co-operative way. They bought the power from a large manufacturer and brought their grain from the fields to this machine and had it threshed, and took home the straw and grain.

Near Dresden, I saw on one farm of fifty-three acres twenty-one cows milked by electricity. This same farmer pumped his water by electricity for the use of his cattle and he had a fire pressure. He had a motor to do the threshing, and he cleaned all his grain by electricity, and the chopping of it was done by electricity, his house and barns were lighted by electricity. He made a splendid livelihood from his farm and said he could sell it at any time for $300 an acre.

How do we propose doing it in this country? We have 281 miles of high voltage line at present and 180 miles of low voltage line running from one village to another, and there is no reason why the farmers cannot connect with these lines and have power cheaper than can be generated by the gasoline engine or oil or coal. We must first look to the low voltage line. We now have 180 miles and we are building thirty miles more, and the applications that we now have on hand will mean the building of four or five hundred miles more, so that in the course of a year or two, we should have a thousand miles of low voltage lines and the main arteries from station to station and from village to village for eight miles wide can be served. That means one thousand miles eight miles wide that can be served, and in that area every farm can be served with electricity. The electricity will be sold for twenty-four hours in the day, and the success of the scheme will depend entirely upon the way in which you can use it upon the farm.

Let us see what a three horse-power motor can do. A one horse-power motor will drive separators, churns, water pumps, fanning mills, washing machines, sewing machines, vacuum cleaners, horse clippers, electric fans, cream freezers, grinding machines, milking machines, ice machines, sheep clippers, drills, lathes, and dish washing machines. A two to five horse-power motor will drive food cutters, laundry mangles, laundry dryers, brine pump, small threshing machine, irrigating pumps, wood saws, straw cutters, refrigerator plants, hay hoists, grist mills, elevators, conveyors and cleaning machines. A ten to twenty horse-power motor will drive large threshing machine and baling presses. A sixty to eighty horse-power motors are required for plowing. If you can take a three horse-power motor and do your work at a certain time of the day, you can use all these appliances.

The Government's policy is to build all the lines for the municipalities; the township will be required to build the lines from the roadway into the farmer's house or barn, and they must collect the dues and compensate the Province. That means a small investment for the township, but it means that there should be no hesitancy on the part of the township to make electricity available for the farmer. Provision has been made in the Hydro-Electric Bill last session that upon application of one or more farmers, the township council must apply to the Commission for an estimate of the cost of the undertaking. When the report is made, the township must have a special session and ask the farmers to meet them and discuss the rate, and if they desire electricity, they (the Township) shall undertake the project. It may seem arbitrary, but the Commission will never undertake to bind a township council or a village council to an undertaking unless they are absolutely sure that the undertaking is going to be a success.

CO-OPERATION. The reason we think that the Government should build these lines is that you will get the benefit of the purchase of a large quantity of apparatus, and you will get a uniform apparatus. A township may want a carload of wire, the Commission will probably buy ten carloads. The township may want 1,000 insulators; the Commission may buy 100,000 at a time. We will inspect the apparatus before it is shipped. We have fixed prices for all these things, and they are secured by tenders and you will get the cheapest price available. You will get apparatus that has been thoroughly tested.

What will the farmer do with $150 worth of electricity per annum? I have a letter from Mr. Prouse, the man who owned one of the silos that was filled by Niagara Power at Ingersoll. He had one filled by a steam engine and the other by Niagara Power, and he tells us that he filled the silo by electricity for $32, or $33 less than the one he filled by steam, and they are both about the same size. If you can save only $20 a silo that will go a long way in paying for $150 worth of electricity. You will have less danger to your building and it will be less expensive.

A portable engine costs from $1,200 to $1,800, and the electric apparatus will only cost from $600 to $800, and it will last twice as long, and will not cost one-quarter the up-keep of a steam engine and boiler. It will be of enormous advantage to the farmer in threshing his grain and filling his silo.

How will this be operated? The farmers jointly will own the apparatus, or a company or some one man will own it. It means a small investment, but it will not amount to a great deal. If you have ten or twenty farmers on a line using 70 or 80 horse-power a day, when the threshing takes place on that concession, the farmers can cut out the use of their power for every purpose to a certain extent and they will not increase the total rate on that line, and you will be able to do your threshing and heavy work of this kind for practically nothing. You can use the power for cooking in the household. The present range is expensive in price and expensive in the way power costs, but with the new cooking apparatus, the fireless cooker, with a small current, it will decrease the cost very materially, and will mean quick and economic cooking, and uniform cooking in the household and for heating as well. You can have a small heater in a room you do not use continually—you can get a radiator at from $6 to $12 and you can use it when you want it.

Three horse-power will cost you 1.8c. per kilowat as compared with 5c. on the Continent of Europe. I do not wish to decry the gasoline engine. We know that one concern in the United States turned out thirty thousand last year for the use of the farmers, but when we have electric motors in use, they will do away with a lot of the danger of fire, and we will do away with the coal oil lamp which will no longer be required. We will be able to do everything, even to warming the beds, by electricity. It is a revolution, a commercial possibility, an accomplished fact, and when we secure the battery that is promised us by Mr. Edison, we will have still greater advantages.

We know there are great advances being made in the storage of electricity. Mr. Edison says he has a battery that weighs less than half the weight of the old battery, and he says he has a battery that will propel a vehicle for 200 miles and is much more economical. When that comes you will have a traction engine for your ploughing, your reaping and your harrowing and the sowing of the land.

We have begun right. We have the product of our water falls, and the application is coming by rapid strides, but we have not yet run the zenith of the use of electricity. The success of this project is an accomplished fact, and you will be, I trust, much relieved of the burden of farm work. The highways of the country will be lighted, another inducement to the young men and women to go back to the farm and remain on the farm, and their lives will be less burdensome, more happy and pleasant.

COUNTY AGRICULTURAL REPRESENTATIVES.

Dr. G. C. Creelman, Agricultural College, Guelph.

I have only one thing to say to you to-night, and that is a comparatively new subject to the farmers of the Province. For years and years—longer than I can remember—we have been digging away with plows and harrows and diggers and cultivators and with reapers and mowers, cutting and gathering in our crop of wheat and oats and peas and barley and rye and clover, and feeding them to the live stock and putting that product upon the market—the same thing year after year, while men in other professions have been improving through the advantage of specialists and scientific men doing things for them. I am free to admit as President of the Agricultural College with a most excellent staff surrounding me, that we have come far short of doing as much for the farming community as the other professions have been able to do, and I admit to-night that it is only in very recent years that we have come to the solution of the problem which is going to help you more directly on your own farms.

When a disease of any kind creeps into this Province of Ontario, within twenty-four hours that information is flashed over the wires and every physician in the country knows how to combat it, and yet during all these years from Glengarry clear west to Essex and north to the Sault and to Fort William, we have had, injurious insects and weed pests creeping in day by day, season after season, year after year and decade after decade, until they have spread clear across this continent from the Atlantic to the Pacific, and we have not found a remedy for many of them yet, because we have not had specialists develop along these lines.

When the Hon. Mr. Whitney was stumping the country in the interests of his party, some seven years ago, he promised to the people of the Province of Ontario that were he elected to power he would immediately put in operation certain machinery which would tend to the development of a better education for the agriculturists of the Province of Ontario, and one of the first things which Mr. Whitney did in order to carry out that promise of his, was to say to the President of the Agricultural College and the Deputy Minister of Agriculture, that the Agricultural College and the Experimental Farm at Guelph had to do more to get the information derived there into the hands of the people. We at once set about to devolve some scheme whereby it could be done. Putting our heads together we were able to say: "Whereas the graduate of the Ontario Agricultural College at Guelph, when he returns to his own community, goes on his own farm or his father's farm and does what little good he can (and he was very often expected to work for nothing and pay his own board), and although his influence is beneficial to the immediate community, yet something more is required." And this scheme was evolved whereby graduates of the Agricultural College who had no farms to return to—the very brightest graduates we could get, men who were a success on their own farms and who in addition had taken an agricultural education, and who were in a position to go out and give information to the farmers of the Province, were appointed to help the farmers throughout the Province.

The first year six men were appointed and we picked out six of the brightest men we could get, young men who had been good farmers at home and whose fathers had been good farmers before them, young men who had come to the College and taken a four years' course. These men went into different counties with fear and trembling, and some of the farmers said "What can this boy teach us?" I am not going to go into the whole details of the matter, but I will give you one illustration.

I was present at a short course in Stock Judging in the County of Lanark, and one old man took me aside from the stock ring where an agricultural specialist was giving an address and pointing out the good and bad points of the different animals. This old man with the long beard took me aside and said to me "You are Creelman from the Agricultural College?" I said, "Yes." He said, "I want to tell you candidly from a man who has lived on a farm all his life and succeeded in making money, that your College is no good." (Laughter.) I said to him: "How do you make that out?" He said: "I have been watching the career of that institution for a long time, and I have heard the professors who came around here to the Farmers' Institutes and gave us lectures on how to farm, and I have gone to the Winter Fair at Guelph, and I have gone to the Toronto Exhibition and looked around there, and I have tried to find out what you are doing in a demonstrative way, and I have come to the conclusion that your College is no good." "But," he said, "if you had on your staff a lot of men like this man Hamer who is working in the County of Lanark, your College would be some good to the Province of Ontario." I said to him, "I thank you for what you have told me. You say that the College is no good, but the young man that came out as a graduate of that institution, having served four years under the men who are professors there, has been able to come down here and give you instruction and help you in your farming methods—that is the best compliment we have ever had paid to the College."

I want to give you a stronger illustration. I want to show you how in the County of Lambton, the County Council—an organization out of which, I believe, there is no place harder to get money—yet the County Council of the County of Lambton stood right up and said, "We have had a man from the Agricultural College in this County for only eighteen months, but we have seen such great benefits from his work that while the Government is paying him $1,200 a year, we do not think it is enough and we are going to give him for the year that is past, out of the treasury of the County of Lambton, to put into his own pocket $750 in cash. (Applause.) County Councils do not give money away. County Councils have not been in the habit of going down in their pockets and giving out money unless they thought they were getting good value for it.

This is the message I have for you to-night. We have duplicated that each year, and now we have twenty men all the way from Port Arthur on the north, Essex on the south, to the County of Glengarry in the east, and these young men are, in my opinion, carrying out the very ideals for which this College was founded, of giving the information which we get, to the farmers. We have just gotten to the point where I believe we have an agency for carrying this gospel of agriculture to every man on the farm.

It is up to you to do your share to help this work along. There is not any other Province, there is not any other country on the face of the globe, that has adopted this system. There is no other Province or no other country that is carrying on this work just in this way to the people on their own farms, and yet there are counties in the Province of Ontario where these young men have gone, where not more than half the people have risen up and said they were going to give the young man a show, and they were glad he came. Many of them are fighting their way. The farmers of this Province are just as much entitled to a specialist in agriculture as they are to specialists in other subjects—law, medicine or anything else.

If any county has not secured one of these men, they should show their faith by their work and ask to have one. Say what you will do in your local councils and your local school board, and get them all to help you secure a young man for your county. Help the good work along. "Ontario expects every farmer to do his duty."

HOUSING POULTRY.

W. R. Graham, Professor of Poultry Husbandry, Ontario Agricultural College, Guelph.

We are going to endeavor to show you this evening a great many varieties of poultry houses. Many of them are those in actual operation on farms in the Province of Ontario. Some of them are not very good, some are considered better, and we will try and take each house as it is thrown on the screen and show you the good and bad points as far as my judgment goes. I wish to say that the essential points in a poultry house are these:

First and foremost—the house must be dry.

Secondly—it must have abundance of fresh air without creating a direct draft over the bird, and

Thirdly—you must have a fair amount of light.

If you get all these points in a house, I do not care how you get it, you will have a good poultry house; that is, if you have it dry with abundance of fresh air and plenty of light and no direct draft over the birds. You will notice that I have left out of consideration altogether the question of temperature. As far as my experience goes I cannot say that the temperature has any material effect upon winter egg production. I have seen the hens lay as well in a house down below zero as any house thirty or forty above. That statement must be qualified by saying that where the birds are kept in cold houses they eat a little more feed.

Dr. Mills: If they are kept in warm houses are they a little more subject to disease?

A.—Yes, quite a lot. If the warm house can be as well ventilated without too great expense, I think the warm house would probably help to increase the egg production, but the cost of the coal would probably more than equal the entire egg productions.

Professor Graham then had thrown upon the screen a number of poultry houses and told the audience the good and bad points of each. The lecture was very instructive and much appreciated by the audience.

MARKETING POULTRY.

F. C. Elford, Professor Poultry Department, Macdonald College, Que.

During the past year or two we have heard considerable about marketing, and probably some of us think the subject is almost threadbare. We may tire of hearing of it, but if you were to go to the market that I went to on Saturday you would realize that we do not know all there is to be known about marketing.

My impression is that the average farmer knows how to grow poultry produce better than he does how to market it. Our education has been along the line of production. We have tried to teach the farmer how to grow a good article. The agricultural colleges have been demonstratng that fact, and the different governments of this Dominion have been doing their best to educate along the line of production, at the same time they have failed to teach the farmer, and we producers have failed to learn how best to market our stuff. There is nothing that pays nearly so well in the whole transaction as proper feeding for the market. How many farmers would think of marketing a steer unless it had been properly fed. We never think of taking any of our other products to the market unless they are in the best condition, but when it comes to poultry, how many of us pay the attention to our marketing that we should? The reasons for this might be summarized under three heads: "Indifference, ignorance, and wilful neglect."

Many producers are indifferent about this subject. Poultry is usually looked upon as a small item on the farm, one of the side issues, and work that is too small for the full-grown man to be interested in. The individual interest is small, although the aggregate is large. The poultry industry in Canada to-day is worth considering. It has been estimated that in Canada last year we produced in the neighbourhood of fifty million dollars' worth of produce, about half as much as the dairy industry, and a good deal more than other industries that are looked upon as of more consequence. Surely, though the farm poultry department may be small, it is worth considering. If it is worth doing at all it is worth doing well.

I do not think there is anything on the farm that will pay quite so well for the money invested as the poultry department. Do we give it a fair chance? There are some people who market poultry as they do their eggs. They are ignorant, and I do hope that of all classes this is the largest. Ignorance is the easiest fault to overcome. I would be sorry to think that stuff was going on to the market as it does because of wilful neglect. A good many people do not know what a new laid egg is, and a great many people fail to realize how soon a new laid egg is spoiled.

I went into a warehouse of one of the produce dealers in Montreal—I am referring to Montreal conditions because I am acquainted with them. I went into this warehouse where a thirty dozen case of eggs came in. I knew the shipper. He told me before that he was sending this case, and he said: "Look in and see if they are not nice new laid eggs." These thirty dozen eggs were candled, and there were eighteen dozen fairly good, eight dozen stale, and two dozen absolutely rotten. I knew there would be trouble when the returns went back, and there was. The shipper said the man who bought these eggs was a sharper, and was trying to do him and other farmers. When we investigated the matter we found that the shipper had not sufficient to make up the thirty dozen, and two of his neighbours chipped in. New laid eggs, of course, they were. At that time of the year, February, they were not getting many eggs. They were bringing their eggs in from the stable as they were laid, and in order to be good to them put them in a basket down behind the kitchen stove, and kept some of them there for six weeks. Now, one would suppose that any person would know that should not have been done. I believe these people were absolutely honest, still that is what they did.

At a show, just such a one as this, not many weeks ago, there was an exhibit of eggs. One class, in which there were five entries, in four of these entries every egg was bad. That was ignorance. Exhibitors would never bring eggs like that into a show to compete for a prize. It is bad enough to take them into a corner grocery, where they welcome such things as that and ask no questions.

There is another class, however, and that is the people who wilfully market bad eggs. I do not like to talk about this class. I do not like to think of them. I have been at grocery stores, and have seen what kind of eggs are delivered. I am sorry to say that women are sometimes guilty in this respect. There is a grocer in Ontario who is getting grayer every day because of the women who bring in "new laid eggs." He dare not say a word to them, because if he does they will go across the road and sell their eggs. I was there once when a woman brought in some eggs. I knew her well. She was perfectly honest in everything else but eggs. She brought her ten dozen into the store. The grocer looked at her, and said: "I suppose they are new laid eggs," I do not know why he said that. I suppose he has got the habit. She said, "Oh, yes, all new laid, every one of them." When she went out she winked at her husband and said, "He took every one of them and did not notice." We looked over the eggs and there were two dozen on the top of the basket fairly good, the others anywhere on to the broiler stage.

The time will come, and the sooner it comes the better, when just such people as that will get their deserts. I believe that woman is just as guilty as if she had gone into that store and came out with a pound of tea under her cloak. The time will come when the law of the land will say so, and the sooner it comes the better for every one in the business.

Is there a remedy? Of course, you will all know that the remedy is to be honest. Right here I would like to say that there may be places in the breeding of cattle, sheep and horses where dishonest men may get along, but we have no place for the dishonest man in the poultry business. If we cannot have honesty in our producers, honesty in the middlemen and in the consumers, right down the line, we are never going to get out of the poultry industry as much as we should. Then the remedy is in the first place to be honest.

Part of the remedy is to have a better article. I said on the start that we were educating our producers to produce better stuff. I meant by that better breeds, grown in better shape and more economically. When it comes to marketing we must also know how to finish them and how to place them on the market.

Do you know why it is that we get such a low price for some of our dressed poultry as we do? Why is it that live poultry is sold so cheaply this fall? Simply because we are putting on the market poultry that never should have gone there. The dealers in Montreal tell me that there is more poor stuff coming on to the market this year than ever, and dealers in Montreal depend very largely upon Ontario farmers to supply their demand. Feed seems to be scarce this year, and consequently higher. Just as soon as the hard weather comes, and it is necessary to house the birds and feed them extra, they are rushed to the market just as they are. We do the same thing with eggs, place them on the market when they are not fit for human food. Every bad crate of poultry and every bad case of eggs that is placed on the market hurts the industry throughout the whole country. We cannot afford to do it.

Then the other side of the question is the decrease in consumption. I have gone through the Bonaventure market, in Montreal, and have looked at the women as they came to the market to buy what they required for dinner. They walk right through looking at the poultry and eggs, and the poultry put up in all sorts of shapes, sizes and conditions is not very attractive. I have seen these women look at them and turn away disgusted, and I have no hesitation in saying that ten per cent. of those who come to buy chickens go to the butchers and buy meat. We cannot afford to antagonize customers in that manner. It means money to us, and we must get away from this method of marketing just as soon as possible.

As to the question of eggs. A man or a woman sitting down to the breakfast table in the morning must have a new laid egg if they have an egg at all. It seems as though a housekeeper can overlook almost anything else except a bad egg or the man who sent it. Just let a man open up a stale egg on the breakfast table. It doesn't only mean that he does not eat it, but it means that he does not eat eggs for a long time afterwards. I heard a gentleman say this spring: "Fifteen years ago I never knew what it was not to eat two or three eggs every morning, but fifteen years ago I sat down to a breakfast, and as I opened up my first egg I cut off the head of a little chicken. For ten long years I never ate an egg. I could not stand it, and for five years more I never ate an egg except under protest." See what it means to place upon the market even one stale egg. We cannot afford to put on the market, nor can we afford to allow any person else to put on the market anything but new laid eggs.

The trouble is the dishonest poultry people do not come to these meetings. I do not see one of them here. Of course we fold our arms and say we are not interested in what others do. We are. Just as long as we allow other people to market bad eggs, we suffer. It is the people who market the good, the honest people, who suffer most. We also want to have a better system of marketing. I do not want to dwell to much upon this. You know what the system of marketing is. You know how the peddler goes around the country. Your eggs are all right I know, but your neighbor's eggs are often part bad, and what is the result? Your good eggs go with your neighbor's bad eggs, and all at the same price. I have heard of men who go around gathering eggs say that just as soon as they are seen coming up the road the children are sent to the barn to gather up every egg they can find. The peddler gets your good new laid eggs and gives you 15 cents a dozen. He comes to my place and I have gathered together all the eggs I can find—good, bad, and indifferent—and he gives me 15 cents, the same as he gave you. Where is the encouragement to be honest? There is none. The system is bad. When you take your eggs to the corner grocery it is just the same.

There is also too much expense in marketing eggs. The producing end is too far from the consuming end, and it costs too much to get our eggs on to the market. There is also the deterioration in the quality of our eggs as well. It has been estimated that fifteen million dollars' worth of eggs that the farmers of Canada produced in the year 1910 cost just ten million more to the market. In other words, it cost 10 cents to market a 15 cent article. I have no doubt but that may be true. We want to change that system just as soon as we know how. It is too expensive and we cannot afford it.

Dr. Mills: How do you make that appear?

A.—The figures were procured from the United States bulletin "Marketing of Eggs," issued by Milo Hastings, in which he says that a dozen of eggs that the Iowa farmer sells for 15 cents costs 25 cents in New York.

Q.—Where does the loss come in?

A.—There is a legitimate expense of course in freight. There is a bigger expense in deterioration. His figures show that 17 per cent. of all the eggs marketed were spoiled by means that could have been avoided.

Q.—Where does the commission come in?

A.—The commission comes in, too. In Canada we do not object to one commission, but when it comes to three or four commissions it is too much. There is no reason under the sun why we should pay so many commission men to market our eggs. We should get closer to the consumer. There is too great a space between us.

Q.—How can you get closer?

A.—Eliminate these rotten eggs on the start. There is no reason why the same price should be paid for rotten eggs as for the good. Then ship more direct.

Q.—Can you tell whether eggs are rotten without candling them?

A.—Generally speaking, the producer should know. In order to get rid of the rotten eggs it means in the first place a campaign of education. There is no doubt that we must know what a new laid egg is. The producer should know when his eggs are new laid, and he must know that eggs kept behind the kitchen stove are not fit for consumption. As soon as the producer knows how to take care of a new laid egg he will endeavor to market it as new laid. Every egg is new laid at one time.

Q.—How long can you call it new laid?

A.—Depends upon conditions, usually five days in summer and ten days in winter. The producer should have them off his premises once a week in winter and twice a week in summer. The system of selling eggs through the country store or by the man who goes around gathering is one of the greatest banes to successful marketing, and just as long as we tolerate it we are not going to get out of the poultry industry what we should. Co-operation is going to come. Co-operation among the producers and co-operation all along the line.

Another thing I want to draw to your attention, that is the necessity of distributing our surplus as evenly over the twelve months as possible. I know it is hard to have poultry to market at this time of the year. It is easier to sell in the fall when everything is going onto the market.

DR. MILLS: Twenty-two cents a pound in Ottawa.

MR. ELFORD: I suppose the producer received for the same seven or eight cents a pound a month ago. There is no reason why we should sell everything at the one time. We can distribute our eggs a great deal better than we do by having early pullets and more eggs in the winter and fewer in the summer.

A MEMBER: The producer is getting 12 cents for crate stuff, and consumer is paying 22 cents?

ANOTHER MEMBER: We are getting 16 cents in Toronto.

MR. ELFORD: Look at a few articles that might be distributed over the twelve months better than they are. Turkeys are a high price at almost any time. A great many farmers make a practice of selling their turkeys too late. I know one or two towns in Western Ontario where they would not sell for the thanksgiving market. Now they have to take less than they were offered then. For the producers to keep turkeys to within a week of Christmas is a mistake. He should give the middleman a chance to dispose of them or to know where his stock is coming from. During the past few years the price has gone down a week before Christmas to the producer, though it has gone up to the consumer.

Ducks are now selling at fairly good prices, but not nearly as high as in the spring. Green ducks ten weeks of age will bring at least 17 cents a pound in the spring live weight, and now they are bringing 10 cents a pound live weight. A duck ten weeks of age will bring 17 cents a pound almost any time during the summer if it is marketed at ten weeks and not carried on until two, three or four months longer. You all know how much ducks eat, and you get very little more weight and a much less price by keeping them too long.

Why were chickens so low in price to the producer this fall? It has been noted that most of the poultry for sale is put on the market in the fall. Owing to the high price of grain in Ontario this fall more than chickens were sold. Merchants in Montreal say that they never had such a lot of old hens marketed in the fall as they had this year. I know one place where thousands of birds were brought in and the buyer declares there were more old hens delivered this year than turkeys, ducks and geese put together. This only intensifies the glut. There is a better time to sell hens and that is in the spring of the year. You can get a better price for live hens in the spring than at any other time of the year. That is the time when no other poultry is going on the market; 22 cents a pound live weight was paid last spring. Same hens in the fall would bring 5 cents a pound live weight. Why are they being sold at that price? Why cannot we distribute the surplus stock over the year a little better. There is no time when hens sell as well as just after the breeding season is over. This would also give the early pullets a chance and the result would be more early winter and fewer summer eggs.

Take broilers. One should get 20 cents or 30 cents a pound for them live weight early in the season. Most of us keep them until they are from four to five pounds in weight and sell them for 8 cents and 9 cents a pound. Sell more when they are young, it will help the fall trade.

The middleman does not know all there is to be known about eggs or dressed poultry. I admit he knows a whole lot more than we as producers do. I was going down Yonge Street, in Toronto, this fall and I noticed a heap of eggs in one window. It looked like an honest ad. I suppose there were one hundred dozen eggs and they looked very nice. They were being sold as a special brand of eggs. I looked at the thermometer in the window and it registered 102. A mammoth incubator with one hundred dozen eggs in it. Now these eggs were certainly not in the best condition when sold to the consumer, but the middleman would not be blamed. They were branded eggs and came from a special producer, who would have to take all the blame for the merchant's ignorance. The middleman should know how to keep eggs and not see them half hatched, and producers and consumers should insist upon it.

I do not know that I ought to mention how much assistance I think the Government should give to the marketing of poultry. I do believe that the Dominion Government might assist the poultry producers of Canada a great deal more than it does. As I noted a while ago, the poultry business is a side issue. The individual interest is small, and the individual producer does not care to spend good money in educating his neighbors. You cannot blame him for that. It is the Provincial Government's business to educate along lines of better production and the Dominion Government's business to educate along the line of better marketing facilities.

Just before I close I want to mention that we have in Canada to-day what is called the Poultry Producers' Association. The Association is made up of poultry producers, and their aim is honesty, co-operation, marketing together, standardization, and, if necessary, legislation to enforce it.

I believe the time will come when we will have a recognized standard for poultry and eggs in Canada. We know what a No. 1 apple is. Do we know what a No. 1 egg is. If apples and small fruits need inspection, the eggs need it much more. You can buy a basket of peaches and know what you are getting, and you can get a basket of eggs and not know until you get them on the table. I think the poultry people deserve a little more recognition, and I believe if the poultry industry in Canada to-day received the encouragement it deserves it would go along by leaps and bounds, and it would not be long until the poultry crop would be one of the big things on the farm.

THE CONSERVATION OF VIGOR.

W. A. Brown, Live Stock Branch, Department of Agriculture, Ottawa.

The conservation of vigor is one of the great fundamental problems confronting all agriculturists interested in the development of plant and animal life. It is of particular interest to poultrymen because more is being required of the modern hen, in proportion to her live weight, than from any other class of farm animals. There is good reason to believe that much of the infertility and low hatching power of eggs and weakness and high mortality among the chickens is due to the lack of vigor on the part of the breeding stock.

The topic is of interest to all poultrymen, but possibly the fanciers have realized its importance to the greatest extent, because, in contrast to the miscellaneous matings of many poultrymen, they have been striving to attain a certain ideal, the achievement of which required that the breeding stock be strong and vigorous and prepotent in the characters desired. No doubt much weak and inferior stock has been produced in instances where vigor has been disregarded. In the last analysis it is remarkable to observe what a small proportion of our breeders have been able to conserve that vigor to the extent of retaining their position in the front row of successful exhibitors in the big shows and who have continued to supply the rank and file of the poultry fraternity with birds of quality for a period of years.

While the farmer and utility man are no doubt working along somewhat different lines, they have much to learn in respect to vigor from the successful breeder. Too many have conceived of no ideal other than the simple reproduction of their flock, and they allow their birds, therefore, to mate up promiscuously from year to year. Too much cannot be said of the value of the ideal; it adds an incentive to selection which with a keen knowledge of that phase of the business must include a very careful culling for vigor.

Some Contributory Causes to Lack of Vigor.

These are similar if not the same as the causes that have brought about the failure of many poultry enterprises. As a matter of fact the average life of many large poultry plants has been very short indeed. The same has been true of the history of many smaller flocks. Many people are continually changing from one breed to another, or doing something, such as the introduction of a male of another breed or variety in order to bring the stock up to the standard of production they think it ought to have. It does not seem to occur to them that the trouble is with themselves in that they have allowed the vigor and stamina of the birds to become gradually depleted. Under ordinary care it takes from three to five years on the average for this condition of affairs to become apparent.

The following are some of the causes that have tended to reduce the vigor of the stock:

1. The great prevalence of the intensive system of keeping poultry. This may work satisfactorily for laying stock, but breeding stock will not give the best results in small and closely yarded runs, bare of green food, and where the soil has become contaminated with the accumulated droppings.

2. Lack of sanitation and the overcrowding of the birds in the damp, dirty, ill-ventilated houses when the consensus of experimental evidence on the matter would indicate them clean, dry, open, or curtain-front houses, with an abundance of fresh air where necessary on account of the peculiar anatomical structure of the fowl.

3. Faulty methods of incubation and brooding.

4. Inroads of disease, and the presence of lice and mites. It is generally recognized that diseased birds should not be bred from, but too many people overlook the fact that but very indifferent results can be obtained from stock which is infested with lice and mites.

5. Unskilful feeding. On many farms and poultry plants where a real genuine interest has been taken in poultry probably the vigor of the birds has been depleted as much by the excessive feeding of too rich rations as by any other single cause. Poultry men interested in late fall and winter egg production have been rather too prone to look upon the hen as a machine, in fact man good laying strains have been popularly called egg-laying machines. No doubt a hen does respond for a time to the feeding of rich protein foods and other stimulants, but these can be used to excess and often are to such an extent that the reproductive organs have lost the power to produce an egg that will hatch a chick, to say nothing of the possible death of the bird itself. It does not pay to treat a living, animate object as one would a machine.

It is not necessary that all of these causes may have been at work on any one farm or plant, but the resultant effect is the same. This effect shows itself in its most tangible form in the gradually increasing mortality among the chickens from year to year and the resultant inability to restock the plant.

The poultry business works in a circle, and this lack of vigor is apparent on the whole circumference, for in many cases the chickens that just lived would have been better dead, for they are often worse than dead. They are weak and anæmic. They do not respond to good treatment and good feed. They do not thrive, they are slow to mature, remain stunted, and often in the general scarcity of pullets they find their way into the laying house, and there they remain, failing to respond themselves, and casting a derogatory effect on the rest of the flock; and if perchance they should get into the breeding pen, the effect of their lack of vigor will be passed on with interest to their progeny, if they have any.

In fact, poultrymen and others the country over do not lay sufficient stress on the individual itself. Ask a number of people congregated together in an Institute meeting or a class-room, "What is the first essential in the production of winter eggs?" It is rather surprising, the number who will answer that it depends on the care, on the feeding, on the housing, or on any one of several other things. They seem to lose sight of the fact that a hen is necessary; not an ordinary hen, but a large, healthy, vigorous, substantial, well-grown pullet that will respond to good treatment even under rather untoward circumstances.

The Indications of Vigor.

First, in the male. He should be strong, well built, and of excellent type for that particular breed. He should have substance and quality, be active, sprightly in appearance, have a lordly strut, be a good fighter, have a strong, lusty crow, oft repeated, attentive to the flock, sharing all dainty morsels but not necessarily starving himself.

Examined in detail, there is an interesting correlation of parts in a physically weak male; for instance, such a male lacks masculinity; he is likely to have a long, thin beak and head and a sunken eye; a long, thin neck; a long, thin body, with no apparent style or station, and long, thin thighs and legs.

A strong, highly vitalized male should have a medium to large bright red comb and wattles, and a bright, clear round eye which stands out prominently on the side of the head. The eye is the mirror of the body. It shows unmistakably indications of health or disease. The size of the tail and the way it is carried is an indication of vigor. A strong, vigorous male has a full, flowing tail which normally is carried erect. The shanks should be strong, plump, and of the color characteristic of the breed, as contrasted with the faded, thin shanks of a male of low vitality. Cold shanks are a very common accompaniment of low vitality. It is a common symptom of disease.

Second, in the female. She should have an active, sprightly movement peculiar to herself, should be tame, rather inclined to follow one about the yard than excitable and nervous. The vigorous hen is the hen that is the first out in the morning, the last to go to roost at night, the hen that goes to roost with a full crop, the hen that lays in the winter, and whose eggs hatch into strong, vigorous chicks in the spring.

The quantity, brilliancy and nature of the plumage are very reliable indications of vigor. The feathers of a fowl of low vitality grow slowly. They are likely to be dull and ruffled as compared with the close-fitting, smooth, fully developed, bright plumage of the vigorous fowl. The color pigment in the feathers of brilliantly colored birds does not develop to perfection in the physically weak. They do not have the surplus fat in their bodies to supply the gland, at the base of the tail, which oils the plumage.

It might not be well to take any single evidence of lack of vigor as conclusive, but a combination of several weak characters is absolutely reliable.

How May Vigor Be Conserved?

By Selection. Selection may be practised in two ways: first, by the individual's observation and innate appreciation of what is required, and the subsequent application of the same in the selection of the stock. Second, by keeping a systematic record of performance and breeding of the different birds, and a definite determination, by biometrical methods, of the relative vigor of those different birds. This implies that the birds in the breeding pens shall consist of only those birds which come up to a certain standard as regards vigor, appearance, performance, and prepotency of desired characters.

Both methods are being practised among poultrymen at the present time, the first, of course, to the greatest extent, the fanciers particularly using this method. The latter is used mainly by investigators

The ideal consists of a combination of both methods, the difficulty in the former alone being evinced in the uncertainty of results, indicated by the fact that no up-to-date breeder, relying on that method alone, depends on a single mating; he uses a great number of matings, and then is not at all sure of what he will get. The difficulty in the second method is that for poultry it entails a great amount of book-keeping, and the fact that anyone so engaged is apt to lose sight of the value of personal observation.

Selection, or rather culling, should be practised all along the line, from the time the egg is laid until the birds are dressed for the market. The exterior of an egg does not give much information concerning the vigor of the germ, but nevertheless it is well to discard all abnormal eggs.

Extreme care should be taken in the selection and management of the hatching medium, for even the progeny of the strongest stock can be greatly injured by faulty incubation. All cripples and weaklings should be killed as soon as apparent. All poultrymen are familiar with the short, round, shrunken body; pale, thin, flat beak; short, thin down; pale, thin shanks, and that peevish, squeaky voice of the weakling, as contrasted with that large, plump, full parallelogram-shaped body that fills the hand, the active, sturdy chicken that is hard to catch and hold. The weak chicken should be destroyed. It is a constant source of annoyance and loss.

Selection should be practised whenever a chick shows weakness. This is often apparent when they are between ten days and three weeks of age. In many weak chickens, especially those of the light weight breeds, the wings droop and seem to grow faster than the body. As a matter of fact it is the reverse: the growth of the body fails to keep pace with the growth of the wings.

The chick that lacks vigor frequently requires several weeks longer to complete its first plumage. Such individuals may be kept until they reach the broiler stage, when a careful selection should be made. In many instances the largest, plumpest chickens—those that reach broiler size first—are sold, and the poorer specimens allowed to mature. This, of course, is wrong, and is not practised by the successful poultryman, who always has his mind and eye on the birds which he intends to place in the future breeding pen.

When the stock is brought in from the range in the fall a rigid selection should be made. Not more than 75 or 80 per cent. of the pullets are fit for the laying pen, and of these only about 10 or 15 per cent. are suitable, on the average, for the breeding pen. Only pullets and cockerels should be retained that satisfy all requirements for robust, constitutional vigor.

To sum up, one might state that the crucial test of any poultryman or poultrywoman's fitness is his or her ability to show at the end of the season the highest possible percentage of strong, healthy, vigorous birds in proportion to the numbers of eggs set.

This implies that the greatest possible skill must have been used in the selection of the breeding stock, in the care of the eggs while hatching, and in the management of the young and growing stock.

Dr. Mills: Would you have the same bird for breeding as you would for winter laying?

A.—It can be done.

Q.—Would you aim at having the select group of birds for breeding?

A.—No, I would prefer to keep the best performers as breeders.

Q.—Would you feed these up for winter production of eggs.

A.—Not unnecessarily; it would depend on conditions.

The Chairman: I am quite sure we owe our thanks to Mr. Brown for his vigorous address, showing how we should put vigor into our chickens. If there are any questions that you would like to put to any of the speakers you are at liberty to do so.

Q.—I would like Mr. Elford to tell us what he would suggest to the farmer as to how to market his eggs. Supposing he has a farm about ten miles back of Montreal.

A.—If I had one hundred hens laying sufficient so that every week I could send my case of eggs to the city, very preferably to the consumer.

The Chairman: I would like to ask Mr. Elford how he would advise a farmer to market his eggs, if he had seventy-five hens, and say you get twenty-five eggs a day.

Mr. Elford: That would be sufficient to make a weekly shipment of twelve dozen eggs. They must be infertile; no male birds should be allowed with the flock. They must be clean. Every dirty nest must be done away with. The eggs should be gathered at least twice a day and stored in a cool room. When they are brought in put them in a closed box, a six or twelve dozen shipping box, not a humpty-dumpty, will answer. Put the eggs into the fillers at once. When the three-dozen layer is full put on whatever stamping is done. The culling should be done as they are put in this box. Keep out any small or bad-shelled eggs for home use. Where possible, keep the colors by themselves.

These eggs should not be sold to the grocer or peddler, but sent once or twice a week to a market that would appreciate quality—to a retailer or a private customer. If two or more honest neighbors would co-operate, transportation expenses would be saved. At first the same as local prices may be received, but as the quality became known, one could expect to get a good price. Send nothing but the very best, be absolutely honest, use neat and attractive packages, with name or brand, and there will be little difficulty after awhile in getting good prices, even though one does live away from the market. Ship the eggs on the same day every week, and on the same train, so that the customer will know just when to count on his eggs. If you have no private customers, and do not know where to ship the eggs, get into communication with the retail dealers or a good storekeeper who would give a price consistent with the quality of the eggs. Do not sell new-laid eggs to the storekeeper at twenty-five cents when he is selling them at fifty cents. I have no quarrel with the man who must have a commission for handling the eggs, he deserves it; but he does not deserve as much as the man who produces them. If you have neighbors, and can get them to do the same as you are doing, co-operate with them and ship the eggs once or twice a week to some person who will give you a good price for them. The whole thing is to get the eggs into the consumers' hands as soon and as cheaply as possible, so that you can guarantee every egg and get them there in the most appetizing condition.

JUDGING DRAUGHT HORSES.

Robert B. Smith, Columbus.

In judging horses we should set up an ideal in our minds and compare the other horse with it. I noticed an article in one of the leading agricultural journals ridiculing the average Institute speaker. The writer said that the man would always begin at the head of the horse, and he stated that the head was the inferior part of the horse, and that the speaker should start at some part of the horse that was valued more highly. I will commence at the head, whether you think it is right or not. We must have some place to start, and if you commence at the head you are not apt to miss any part of the animal in going over it. We look for an ear of medium size, set well up and pointed. The cranium—that is, the portion between the ears—should be round and not too prominent. We like to see the forehead of a fair width between the eys, flat, and without any fulness. I believe the eye is one of the most important parts of the horse's head. We like to see a good, bright, full and prominent eye, not dull or sluggish. The nasal bone—that is, from the eye down to the muzzle—we like to see straight, and not what is termed a Roman nose. We like to see the muzzle full and strong, denoting good lung power. We do not like to see the lips too heavy. You often see the lips hanging down, this denotes sluggishness. We like to see the lips meet evenly and rather firmly set. The front teeth should come firmly together. You will occasionally see a horse with overshot teeth or undershot, in either case you have a horse that cannot grind its food as it should, and if it is turned out to grass it will not do well. We like to see the jaw angular and wide. We like to see a good width from jaw to jaw. We like to see the head on a stallion so that when you look at it you know it is a stallion. We like to see masculinity. In a mare we look for femininity. Sometimes we see a horse that is well proportioned, except the head is small. That gives a bad appearance to the horse. The head denotes the character of the horse. I like to see a horse coming towards me; I can almost tell from the look of the horse the kind of temperament he has. In the throat, where the head it attached to the neck, we do not like to see coarseness; we like to see it rather cleanly cut; but not too much so or it will look like a light horse. We like to see the neck blend well back into the shoulder and of good length. We object very strongly to a short, chubby neck. When you put a big collar on a horse with a short neck it looks as if the head were just sticking through the collar and looking at you. I like to see a fair amount of neck after the collar is on the horse. We like plenty of obliquity in the shoulder, that will make the neck appear longer, and the collar will set well back on it; and it is far easier for a horse with such a neck to draw a heavy load. The neck should be well arched, especially in the male. We do not look for quite so heavy a neck in the female. Sometimes in the stallion you will find a neck so heavy that it flops over on one side. The neck must be carried straight back, be well arched, and blend well into the shoulder. The wither should be in line with the neck and blend into the back. You will sometimes see what is commonly termed a ewe-neck. The wither should be broad and well muscled. The back should not be too long; if you get a horse with a long back he is likely to have a short rib and be a hard doer. We like to see a short, well coupled back, the loins broad and well muscled. We like to see a croup thick and not drooping. We like to see the dock well on and covered with hair.

Some people have a mistaken idea as to what a horse's chest is. Some people think the chest is in front. The chest of the horse consists of the breast, back to where it contains the lungs and the organs of the chest. We like to see a good girth, not any demarcation from the shoulder back to the ribs. Deficiency in the girth shows a weak constitution. The rib should be long and well rounded. We object strongly to a flat rib.

In the foreleg we like to see the elbow set well under the body; not too much so, but set neatly in under. Where the legs are set too far out looking like posts under the horse, that horse will not be as good a mover as the horse that has his legs well under him. The fore-arm should be straight, a fair length and well muscled. We look for good muscling in the fore-arm denoting good drawing power.

The knee should be broad and flat and free from puffiness. We object very strongly to any meatiness from the knee to the fetlock; we like to see the bone clean-cut and no meat on the tendons or ligaments that run from the knee to the fetlock. We like to see the fetlock a fair size and free from any puffiness. The ankle from the joint down to the hoof-head should be of a fair length. Some are too long, they have been breeding away from the short pastern and have overdone it. We like to see obliquity there for the reason that the horse travelling on the hard pavement and drawing heavy loads—there is concussion on the cartilage above the hoof-head, and if the pasterns are short that concussion will cause side bones. The hoof-heads should be well rounded and full. We like the hoof to be of a fine texture, well rounded, coming well out. You have heard the term, "That horse has a hoof like a butcher's block!"

In the hind leg we like to see the stifle set well under the body, gaskin strong and heavily muscled. I believe the hock is one of the most important parts of the horse's leg. In the hock you find the seat of more ailments than almost any other one part of the horse. The hock should be clean and free from any puffiness. From the hock down to the fetlock should be clean and free from meat. The bone must be flat. The fetlock joint must be of a fair size and clean, and we look for plenty of obliquity from the joint down to the hoof-head. We look for a large, full hoof-head, and the hoof on the hind leg should be, if possible, a little more pointed, a little more oblong than the front foot. We do not look for the same round appearance, and the horse should stand on the hind feet somewhat toed out. I forgot to mention that in the front he must stand perfectly straight, if you have a horse that stands toed out in front you have a horse that is going to roll and almost invariably interfere. If he is toed in front he will paddle, which is very unsightly. If he stands perfectly straight behind he will carry his hocks wide.

In Clydesdales and Shires we like to see the hair on the posterior part of the cannon bone fine and silky; we object strongly to any curly or fuzzy appearance. The hair must be straight and fine and silky; if you have that you have a horse that does not show any coarseness.

This bit of feathering that comes over the hoof-head on the hind foot, what the Scotchman calls "the spats," gives the horse a flashy appearance, and we do not object to it.

The gait of the horse must be straight and true. We do not want to see any paddling with the front feet. He must travel straight and pick his feet up clean so that you can see the bottom part of the hoof. In the hind legs, he must carry the hocks close together. You have often heard the expression, "That a wheelbarrow could be run between the horses's hind legs!" We object to that in a heavy horse.

COLOR. Almost any color is unobjectionable in a heavy horse. In Clydesdales and Shires we look for black, brown and bay, and roan; sometimes you find a gray. We like to see a horse that is symmetrical. By that I mean, one part of the horse corresponds with the other. He should not be too heavy in his hind quarter or his front.

Q.—Tell us his faults?

A.—This horse belongs to our firm, and he was not brought in here for the purpose of criticism. I think it is a mistake to bring any horse in here and cut him to pieces.

Q.—Do you like curly hair on a horse?

A.—No, I like to see the hairs on the tail, mane and legs straight.

Mr. Ness: Do you prefer a horse with a straight back, or a little lowness in the back?

A.—I would rather have a horse that had a little bit of deficiency than a horse that was perfectly straight from the withers back to the croup. I think, nine times out of ten, where you have a horse with a perfectly straight back, you will find that his ribs are short.

THE CARE OF THE PREGNANT MARE.

John Gardhouse, Highfield.

The subject that I am to take up with you is "The Care of the Pregnant Mare." It is a very important subject, and one that I am not capable of dealing with as fully as I would like to. I think it is well to commence at the time the mare is bred, and you should always see that you have the mare in good healthy condition. Her blood should be cool. If she is on grass for a time, so much the better; if not, it is well to give her some laxative food, such as bran.

After breeding the mare, I would advise letting her run a short time before putting her to work. If she is not suckling a foal, you may put her to work, and work her right along in the usual way, just the same as you would work any other horse on the farm. If she is suckling a foal, I do not think she should be put to work until after she is bred again, and if you can do without working her for two or three weeks so much the better. When you commence to work her do not expect her to do a full day's work at first. It is very important that you start her off to work quietly and easily; rather light work and short hours. I like to unhitch the mare in the middle of the forenoon and afternoon and take her in and let the foal have a suck and give the mare a drop of water and a few oats; it will help her and it will help the foal. After you have the mare nicely settled down to her usual work you can keep her working steadily all summer, provided you always put her in the hands of a good horseman. Do not expect brood mares to do as much work as another horse and suckle a foal, especially if they are in the hands of a poor horseman. The fall of the year, I think, is the most important time for the pregnant mare. I think a great many farmers make a mistake at this time of the year. They are busy, and anxious to get the fall plowing and other work on the farm done, and they probably work the mares pretty hard and feed them fairly well, and it may freeze up quite suddenly. Then there is little or no work for the horses to do. The mare is very often left standing in a damp, dark, stuffy stable; that is a very bad thing to do. You should always see that they have plenty of light, fresh air and exercise. They should get exercise in some way, never allow extremes. I think you will find that there is more abortion caused by mares being compelled to stand in the stable, and the extreme change they get in the fall, than anything else. You should be very cautious at this time and avoid extremes. Reduce the feed gradually and give them exercise and fresh air. Very often, when a mare has been suckling a foal and doing fairly hard work, her blood will be considerably run down, and it is necessary to build the mare up a little; and the only way you can do it is by continuing to give her a certain amount of exercise and a fair quantity of good wholesome feed. After she has been taken into winter quarters, if you have work for her to do, it is well that you continue the work. She will do better and will carry through the winter in better shape, and will come out in the spring in better shape for foaling or for the spring work. Many farmers have no work for their horses to do, and if you have no work for them it is absolutely necessary to give them exercise and plenty of fresh air. Give them half a day in the barnyard or a paddock. They will stand a considerable amount of cold, but they must have fresh air and a fair amount of good, clean, wholesome food.

Q.—What feed do you approve?

A.—Nothing better than good, well-cured mixed hay and oats and bran. There is nothing better for a horse, I don't care whether it is the brood mare or the colt or the working horse.

Q.—Do you approve of flax-seed meal?

A.—Not very much for a pregnant mare; it is rather of a fattening nature.

Q.—How about roots?

A.—A certain amount is all right, not too many; a few carrots or apples every other night not too many.

Q.—How about ensilage?

A.—I think you can use the ensilage to better advantage by feeding it to cattle.

Q.—What about lucerne for the brood mare

A.—A small quantity may be all right. Well-cured lucerne hay is good feed for any kind of live stock, but you must feed it with moderation, especially to a brood mare.

Q.—Do you approve feeding moistened bran?

A.—It is all right to give a bran mash, and it is all right to feed a small amount of dry bran with the oats. Some prefer whole oats and some ground. I like to let the mare do her own grinding.

Q.—If the bran is just moistened?

A.—I am not sure that it is all right. I would not object to doing it, but if you will, mix rolled oats and bran, or whole oats and bran, and if her teeth are in good shape, allow her to do her own grinding, as I think it is much better. I have heard farmers say that bran was too high and they could not afford to buy it. It is high, but other grains are high, and I think two pounds of oats and one of bran will make a better ration than three pounds of oats, and you will have a cheaper feed by using the bran, even at the present price.

Q.—What about middlings?

A.—I prefer to use middlings for the other stock. I would not feed middlings to the horse at all, especially to the brood mares.

Q.—I do not think middlings are now any better than the bran used to be?

A.—I am not sure that they are even as good; the bran we used to get was pretty good stuff.

Q.—Do you feed any boiled grain?

A.—In the spring of the year, if the brood mare is not on grass, I think it is well that she should get a few boiled oats once a day. At night, when you are feeding I would add some bran. They must have some laxative food. If they are getting grass they do not require it. A few boiled oats and some bran is the best you can give them, if they are not on the grass.

Q.—What about mixing a little linseed meal along with the oats before foaling?

A.—I am not sure about that. I know that many men have said that it is well to mix a little linseed meal along with the feed. If you are boiling it, perhaps a certain quantity is all right, but there is a danger you may have a rather soft and fatty foal if you feed linseed meal.

Q.—Suppose you feed it just a short time before they foal, if they are not on grass?

A.—A small quantity might be all right, but I would be careful not to give a large amount.

Q.—Do you ever feed any whole wheat to your pregnant mares?

A.—No.

Q.—What is the matter with it?

A.—Because I think bran and oats are better. I would rather turn the wheat into cash and buy the bran.

Q.—Do you ever roll the wheat with the oats?

A.—If we happen to have a year where the wheat is killed out, sometimes oats are sown in the field, and then it does not hurt if there is a little wheat in it. I would rather turn the wheat into money and buy bran. It is better to grind it if there is any wheat mixed with the oats.

Q.—What medicine would you advocate to keep the blood cool?

A.—You will have to ask a veterinary. If you want to keep the blood cool, keep her healthy. You can keep her healthy best by feeding her good, wholesome food and giving her exercise and plenty of frsh air.

Q.—Is boiled barley good for a brood mare?

A.—I would not use it. I would rather turn the barley into cash, or give it to the hogs or cattle, and use the oats and the bran for the brood mare.

Q.—If you feed roots to the mare, would you feed them in the morning or at night?"

A.—At night.

Q.—Why not in the morning?

A.—If the mare is not working I do not suppose it matters very much. If they are working you should not give them soft feed to go out to work on.

Q.—If they are idle, what is the matter with feeding them at noon?

A.—I would rather give them dry feed in the daytime and let them out in the air, and give them their soft feed at night, when they lie down and rest I am not saying you could not feed them in the morning or at noon and get good results. However, I have no reason to think that you would gain anything by doing so.

Q.—Do you put salt in the oats?

A.—Yes, every time you feed them; but do not put too much.

Q.—How much?

A.—Some require more than others. I would not lay down any hard and fast rule for feeding any quantity of feed or salt; horses are like people, some require a great deal more than others.

Q.—Do you think too much salt is good for a mare?

A.—Too much salt is not good for anything.

Q.—Do you think they should have any salt at all at that time?

A—Yes, they certainly should; there is no doubt about that.

Q.—Don't you think the best way is to put the salt where the mare can get what she wants?

A.—Some people prefer to fed it in that way. They say there is not any better way than to leave it where the horse can take what it wants.

Q.—Do you approve of putting salt on the hay?

A.—I do not know that I do particularly. I like to cure the hay in the field and mix the salt with the grain ration.

Q.—How about rock salt?

A.—Some horses will not get as much salt as they require. I prefer the common salt and mix a small quantity with the grain.

Q.—When the mare comes to the point of foaling do you prefer to leave her alone or have some person with her?

A.—I believe that a man should be very careful at that time and allow nature to have its course. I think it is well to be on hand for fear anything might be wrong, but if everything is right, nine times out of ten it is better to leave the mare alone.

Q.—How long after the colt is born would you leave her alone without interfering, supposing it does not get up?

A.—As long as the mare and foal lie quietly, leave them alone. The colt will nearly always break away itself.

Q.—You would not tie the cord?

A.—Not unless I had to cut it, and then it is as well to tie it.

Q.—Is there any danger of the colt smothering?

A.—Yes, occasionally. That is one reason why you want to be on hand.

Q.—Is it better that the mare should not know you are there?

A.—Yes, I prefer that. I think too many people get excited just at that time, and sometimes cause trouble by attracting the attention of the mare when the attention of the mare is required on the foal.

Q.—Is wheat straw bad for a pregnant mare?

A.—It might be if she gorged herself with it. I have never had bad results.

Q.—Can you account for some colts being so weak when they are born, supposing the mare is fed right and treated right?

A.—Some mares will always produce a weak foal. I cannot give any reason. It seems to be the nature of the mare. A mare that has plenty of fresh air and exercise and good food should produce a healthy, strong foal.

Q.—How is it some mares only breed every other year?

A.—It is something in the nature of that particular mare.

Now, I have a few "Don'ts" that I would like to give you before taking my seat.

Don't expect your mare to do a hard week's work one week and not do anything the next week and do well.

Don't expect a first-class colt from a second or third class stallion and a poor mare. (Applause.)

Don't expect a mare to be suckling a foal and carrying another one and do as much work as a good horse without a little extra care.

Don't expect a good mare to do well in a poor horseman's hands.

Don't allow any man to abuse a brood mare.

Don't expect her to do a full day's work when you commence to work in the the spring of the year, especially if she has not been working during the winter.

Don't hitch her on to heavy loads where there is any backing to be done.

Don't allow her to gorge herself with long frozen grass, or rough, coarse, bulky feed of any kind.

Don't expect her to draw heavy loads when it is icy or slippery, unless she is sharp-shod.

Q.—Do you think you can draw a mare too heavy when she is in foal?

A.—I certainly do. You can draw any horse too heavy. There is reason in all things. I dare say you can put some mare on loads and draw and tug as much as you like, and she might not lose her foal, but that is the exception. It is not fair to the mare or to yourself to put her to draw a very heavy load.

Before I close I have a few "Do's."

Do give the brood mare a fair chance.

Do give her a fair amount of work. She will do better with a fair amount of work than doing nothing.

Do give her a fair amount of clean, wholesome food.

Do give her plenty of good, clean water at all times.

Do give her sufficient salt at all times.

Do give her a good, clean, bright stall during the winter months, with plenty of bedding and light; a box stall if you have it.

Do see that she gets out in the yard for a short time each day, if not working.

Do breed her to the very best stallion that you can get.

Do avoid extremes at all times and under all circumstances.

Do expect a well-bred mare, properly mated, to raise you a good colt. (Applause.)

Q.—How soon after foaling would you breed the mare?

A.—When she is ready to take the horse. I have heard it said that mares will take the horse and be in foal three days after foaling. As a rule I think you will find from nine to fifteen days will be the proper time for the average mare. I have never tried them in three days. I think it is too soon.

Q.—I have heard it said that a mare bred before five or six weeks carries an unusual amount of water?

A.—I have heard that point raised before. I do not think it is correct.

Q.—Does it make any difference to the sucking colt if the mare runs milk before she foals?

A.—I do not like to see it.

Q.—What is the reason for it?

A.—I do not think it is natural. A mare that is all right should not let her milk run before she foals. The first milk of the mare is the best for the foal to get. There is no doubt about that.

Q.—It is said that these foals all die?

A.—They very often do.

A MEMBER: I had a mare that ran milk two months before the foal was born, and it was born dead.

ANOTHER MEMBER: I had an old mare that ran milk two three weeks before foaling, and she always had a good healthy colt.

Q.—What would be the best way of preventing the running of milk?

A. I do not know of any better way than dry feed and plenty of exercise.

THE CARE OF THE COLT TO THREE YEARS OF AGE.

JOHN BRIGHT, MYRTLE STATION.

This is a very important question in the horse business, because the financial success of the business depends on the care of the colt to three years of age. Professor Day said to the Executive that it was one of the questions that he would like to have discussed. He had in mind the overdone colt. Mr. J. H. Grisdale, of Ottawa, thought it was a most important question, and they are having it at the Ottawa Show.

There are two sides to the question: First, the lack of interest in the colt from the time it is weaned up to the time it is put in harness; and, second, the overdoing of a good colt.

I think you will find in this Province of Ontario that there are a great many colts not properly cared for, compared with those that are overdone. There are certainly a few colts overdone by their owners being too good to them. These are largely the making of the best horses we have in the Province, and are the most promising colts. The owner having a good colt takes a notion to show him, and he thinks more of him every day; and how often we find the colt that wins every prize in the fall is never shown again. Sometimes they come back the next year as yearlings and in good shape, but we rarely ever see them back in the show ring. They have been overdone by their owners, and that is the reason they are not fit to come back. The owner keeps on increasing the top and making a heavy body and neglecting the important part of the colt—the feet and legs. The colt will stand so much, and when you go beyond that you are overdoing it. You give the colt the feed that will put on the top, and he will be pleasing you more and more every day, but you are not giving that colt a balanced feed to produce the bone and muscle, and you are not giving him the proper care and exercise to produce bone and muscle. The consequence is you are getting a two-year colt on yearling legs. As sure as you do that something will happen; you are bound to have something go wrong if you get the top too heavy for the bottom. You do not put on this extra weight by keeping the colt on the march ten hours in the day. It is in a box stall, or perhaps in a single stall, and only out perhaps an hour or two a day.

I would now like to direct attention for a few moments to the multitude of colts that are underdone. You can have the best draught mare in the country and breed her to the best sire, and raise a good colt, up to two or three months old or four months old. These colts will generally take care of themselves up to that time when the dam is nursing them. From that time on they go back or stand still, unless they receive proper care and attention. It is very hard to get a team of draught horses weighing thirty hundred at maturity. On the markets in Ontario they are not plentiful; while we have any amount of what we call "fair chunks," weighing 1,300 or 1,400, just as well bred, but they have been stunted by lack of care and attention. The colts are generally all right up to weaning time. In the fall, as soon as the plowing starts, the farmer wants to use the mare, and he puts her into real hard work. The colt remains in the stable, in a box stall, for a week or so. Then, from the lack of exercise, and the extreme change from running in the pasture field, in a week or two he starts to swell up in the legs. The owner notices this swelling, and he turns the colt out in the field. If there is any grass the chances are that the colt is left out until the snow flies. That colt will not be as heavy when it goes into the stable as it was the day it was weaned. There are hundreds of colts in Ontario that were not as heavy in December as they were the day they were weaned. If a man has an animal around that is looking extra nice he will give it a little extra care, but if it looks a little rough he is more careless about it. During the winter this colt gets a little hay, a few roots, and very little grain, and it goes out on the grass in the spring with about half the weight that it should have. It is turned out to shift for itself. The very best grass we have is the first six weeks' grass in the spring. The colt is just starting to shed his hair and do well when the flies begin to bother, and then the pasture begins to drop off; but the colt is still left out to shift for itself. The consequence is that there are very many draught horses that are only the weight of a yearling when they are two years old, and that is a loss to the farmer every time.

My idea of the care of a colt to three years of age, in short, is: In the first place they should not be weaned until they are educated to eat, and then they should be weaned gradually. They should have plenty of exercise and good food. The most important six months of a colt's life is the first winter. They want good feed, good clover hay and roots, and some oats, not too much. One animal will take more than another, and we must use discretion in feeding. After a colt is weaned an excellent food is sweet skimmed milk. As long as you give it plenty of feed and exercise and do not allow it to get too fat, you will be sure to have a good colt, and you need have no fear of spoiling his feet and legs. You are feeding it a good, wholesome ration that will produce both bone and muscle, and giving it plenty of exercise to develop the whole system.

When the spring comes, if you find the colt in good condition and shedding its hair before it is turned out to the grass, see the great chance that colt has. That colt will go right out on the grass and start to grow and develop in every way. I believe the first year it pays to take care of the colt in the daytime when the flies get bad. Supposing you do not give them anything but a little clover hay, it will give you good results for the little extra feed and the necessary care and attention. You do not require as much real good feed the second year as you do the first. We must use our own judgment as to whether the colt requires something else to help it along. You can read all you like on the subject, but it comes back to the fact that you must use your own judgment if you are going to be successful in the horse business or any other business.

Q.—Do you approve of feeding ground flax to the colt?

A.—A little ground flax is good for any kind of live stock. It should not be given in large quantities.

Q.—How much?

A.—I would not want to give a foal more than a handful at a feed, mixing it with the other feed.

Q.—At what age would you advise feeding it?

A.—That depends on circumstances. If you have not got to work the mare too hard I like the colt to suck four or five months at least, and I do not object to a little longer. If you want to use the mare she can wean the colt at two months and a half, if you give it sweet skimmed milk. I never let the colt run with the mare. The mare will not fret very much after she has been worked a day or two, and the colt will start to eat, and as soon as it does that you will have no trouble in raising a good colt, if you give it proper attention.

Q.—How do you teach the colt to drink milk?

A.—Some will drink readily and others make trouble. If they won't drink do not give them any water for a day or two, and then put a little color of milk in the water and keep on increasing the milk in the water each time, and it is well to put in a little sugar.

Q.—What is a good feed for a colt?

A.—Perhaps about a gallon and a half of oats and bran fed three times a day. You must use your own judgment. That feed would be for a day.

THE ECONOMICAL FEEDING OF BEEF CATTLE.

J. H. GRISDALE, DIRECTOR DOMINION EXPERIMENTAL FARMS, OTTAWA.

The question of producing and handling beef cheaply is one of exceeding great importance, to not only the Canadian farmer, but to the Canadian citizen at large. As matters stand to-day, it costs the farmer anywhere from 6 to 10 cents a pound live weight to produce a steer. He has to sell this to the butcher for anywhere from 4 to, at the very highest, 8 cents a pound live weight. The butcher kills the steer, looks at it and retails to the consumer at anywhere from 6 to 25 cents a pound dead weight. The difference of from two to three cents a pound that the steer not infrequently costs the farmer more than it brings him is usually disputed, and unfortunately the farmer rarely knows positively what the animal really does cost him when ready for the market. The fact that the steer consumes a larger amount of coarse forage that would otherwise, in part at least, go to waste or have to be sold off the farm at great loss, and while consuming this feed produces at the same time a large quantity of most valuable manure and requires comparatively a small amount of labour for care and feeding—accounts for business being looked upon otherwise than as a luxury to be indulged in only by the gentleman farmer or the show man.

It is possible, however, in spite of the above statements, to produce beef at a profit under Canadian conditions, provided always that proper local conditions maintain, that the right class of animals are fed, proper feeds used, and the animals handled in the right way. To the man who wishes to go into beef production a number of lines of operation present themselves. He may produce the calf and feed until ready for the block, which will necessitate his handling breeding stock and so render the business much more complicated. He may buy the calves when a few days old and feed them forward until ready for the block, or he may buy stockers and handle them until ready for the block, that is, feed them until the right stage is reached for his market requirements.

For the man who starts with the calf, experience would seem to indicate rushing the calf from two or three months old to about eighteen months old, then selling for beef, as the most profitable line, that is the production of baby beef. The other plan of allowing the calves to grow up and paying attention to growth rather than fattening for a couple of years is likely to be profitable only when cheap pasturage is conveniently available and roughage plentiful and easily handled in winter.

Leaving aside the question of methods of baby beef production and the relative merits of baby beef production versus feeding stockers through the winter for beefing off in the spring or when ready for the block, we might take up the principal considerations in handling the steer along this latter and more common line.

During the past twenty years we have fed off, on the Experimental Farms of the Dominion, some fifteen hundred steers and the findings along different lines fill quite a volume. My remarks will indicate in a general way the results of our work.

Dealing only with those points which are likely to be of interest to the Ontario feeder, one might begin by asking the question: "What aged stockers should be bought by the farmer desirous of getting the best results for feed consumed?" Our experiments along this line indicate that of the three classes commonly fed yearlings, two-year-olds and three-year-olds, the two-year-olds is likely to give the best returns for feed consumed and to command the highest price on the market the following spring. The yearling frequently costs a little too much to begin with and is not quite big enough at the end of the feeding period. However, under average conditions, the gain is put on just as cheaply, if not at lower cost, than in the case of the two-year-old. The three-year-old gains (depending, of course, upon the condition of flesh when bought) about as rapidly as the two-year-old; but costs, as a rule, something more per pound of increased live weight, and, unless very fat, in the spring brings very little, if any, more than the well finished two-year-old. Of course, a bunch of three-year-olds weighing around 1,400 lbs., and being of the right type, will command the very top price for the best export trade. Hence, once in awhile three-year-olds may be expected to do better than two-year-olds for feeding. When I speak of "yearlings," I mean really eighteen months old when starting to feed, and so on with the other ages.

The next consideration might be as to whether the farmer should prepare to feed in open shed and small corral or housing in a warm stable. Where buildings already exist, or where moderately cheap constructions can be put up, the probabilities are that it will pay to feed inside. In fact, in Ontario it is probable that inside feeding would practically always be more advantageous than outside feeding, although our experiments indicate that very cheap shelters prove quite satisfactory for steer feeding operations.

When feeding inside, two methods of handling may be followed, that is, the steers may run loose or be fed tied. On this point our experiments are quite definite, the results in every case pointing to the advisability of letting steers run loose in moderately roomy boxes with eight to ten in a box. Steers running loose consume more per diem and make greater gains at lower cost per pound, by anywhere from 10 per cent. to 30 per cent., than similar steers fed tied and given similar feed, while the attention necessary is less in the case of the loose steers by anywhere from 20 per cent. to 50 per cent.; and the quantity and quality of the manure likely to be produced under the different conditions is very much in favour of the steers fed loose. Hence, it would appear that feeding loose eight to ten in a box, with say from 50 to 60 sq. feet of space per steer, would be the best method.

After methods of housing, length of time of feeding might be considered. Six months is a common feeding period, though four months, provided conditions are right, is likely to be more profitable; but length of time must largely be controlled by condition of steers in coming in, quantity and character of feed available, and market demands in the spring. The thin steer getting lots of roughage gives good returns and fair profit when fed for six or eight months; whereas, to get the best returns from well fleshed steers, a shorter feeding period of say from three to four months, where the ration included less roughage and considerably more meal of high feeding value, would be the right thing. The method of feeding will depend upon the feeds available; but experience indicates the great importance of a fairly plentiful supply of succulent feed, if the best gains at the least cost and with the least danger of cattle going off feed or suffering in health, are desired. such feed usually cheapens the product and very certainly improves the quality. The question of the meal ration of feed will depend upon the length of time the feeding period is to cover. Generally speaking, start with a light ration and gradually work up a heavy, but for short feed steers it is usually necessary to start with a fair quantity of meal and rapidly raise to heavy feeding. Another consideration is the character of meal to feed. Home grown feeds are usually thought to be cheapest, but very often a ration compounded from home grown feeds is not as suitable for beef production as would be a ration including along with the home grown grains a certain proportion of meals richer in fat and potein than are oats, corn and barley, the common feeds of Ontario farmers. Gluten meal, cotton seed meal and oil cake meal are the supplementary feeds most likely to give good results and might constitute, early in the feeding period, say 10 per cent. or 15 per cent. of the meal ration, and later on, from 30 per cent. to above 50 per cent. for the last few weeks. Whether to feed the grain whole or crushed is not open to question, since every experiment points to the advisability of having the grain ground, even though the grinding cost considerable. Much unground grain goes through whole, and even where grain is poorly ground considerable loss is incurred.

The nutritive ratio of the meal ration, and of the whole ration, in fact, is a fairly negligible consideration. Palatability and easy digestibility are factors of greater importance than the relative proportions of carbohydrates, fat and protein.

The number of times to feed is to a certain extent a matter of convenience, also to some extent a matter of habit to the steer; but, generally speaking, twice a day is often enough and the meal had usually better be fed mixed with roughage.

A morning feed for a 1,200 lb. steer might consist of 30 lbs. of a mixture two parts corn ensilage and one part roots, two or three pounds of chopped straw; mix with it two pounds of meal mixture and about three pounds of hay. The chopped straw, roots, ensilage and meal should be mixed and fed together, the hay fed longer after the other forage is consumed. This repeated at night will make up the ration for the day and is about what long feed steers should be getting in January.

The breed to feed is hard to settle; but any one of our beef breeds (Shorthorns, Angus, Hereford or Galloway) is likely to give good results. The Hereford, in my experience, does better on pasture than the others; but not quite so well in a box or stall.

Stable management has much to do with success or failure in feeding operation. A sufficient and constant supply of water, salt readily accessible, fairly frequent cleaning or brushing, clipping to prevent caking with maure on hips and flanks, an abundance of good bedding and a liberal supply of light from decently cleaned windows, good fresh air controlled by some system of ventilation, and kindly treatment, will all work together to ensure good gains at a moderate cost and practically compel profits, provided always the market remains normal.

DISCUSSION.

THOMAS MCMILLAN, SEAFORTH: We have listened to an excellent address from my friend Mr. Grisdale, and in offering a word in discussion I feel that I am talking to the most wide-awake farmers in the Province who have made ends meet on their farms, and that is the reason they are here; they are eager for further information. In my remarks on beef production I might just say "Amen" to all that Mr. Grisdale has said, but that would not be of much benefit to you. This is a question of very great importance to the farmers of this Province. During the last number of years a great many of our beef-growing farmers have gone out of the business simply because they found there was not sufficient profit in it. I am still engaged in the business, and I presume you want to know whether I am able to find any profit. I could not add anything to what Mr. Grisdale has said in the matter of choosing animals to feed. The reason I follow the business of beef production is because it fits in with my general system of farm operation. I always like to try to be master of the situation on my own farm. I do not like to be in the situation, where, if a shortage of crop should come, some of my animals must be sacrificed. Under the present system of operation, there is no trouble or annoyance in following the ordinary operations of the farm during the summer season, and when it comes to the fall, we can cut our clothes according to the size of our cloth. With plenty of feed a few more steers can be bought. If the crop is short, not so may. For the last few years the aim has been to put in one hundred steers each year. I like odd numbers; we have one hundred and one this year, one hundred and eleven last year, eighty-eight the year before and the year before that, we had one hundred and seven.

I will give you an idea of the returns we get from them, because that is what you want. Last year we had one hundred and eleven head, and although things have been going very good, yet I won't say if every year gave us the same results as last year, we might not change our system. That is not because we did not get a fairly good price for our animals. We got 6c. per pound; $5.90 for some and $6 for the balance. It was due to the fact that stock steers sold extremely high the previous fall, that is higher than they usually do considering the prices we received. Last year my margin only amounted to $24.15. That was not very much, although it paid market prices for the feed, with the exception of the straw. The year before my animals turned a little more than $24.15; they turned $50 per head and taking the two years together that was little above the average for the last five years. For 1909 my average was $35.80. In 1908 it was $36.64 and in 1907, $35. In the five years they gave me the average of $36.92. That margin pays well for the food consumed. It enables us to return the rich food material grown back to the soil through the manure heap, and it fits in well with my general farm operations. It is a nice system to follow if you can make it go.

You may ask what was the cost of these steers when stabled each year. This year they cost $5.03 per hundred and they averaged 1,128 pounds. A year ago they cost $5.23 and averaged 1,172 pounds. Two years ago they averaged $4.33 and weighed 1,094. The year before they cost $4.15 and averaged 1,162. The year before that they cost $4.12 and averaged 1,142.

In order to get the best results in feeding cattle there are three or four considerations that we must take into account. The first is to get the right kind of cattle. I always think that if they are well bought they are half sold. I do not mean buying them cheap, but you should get the right kind of cattle. Good animals will sell themselves. It is my experience that a steer that has been well done to up to the time we get him, gives the best return for the feed which he consumes. My guide has been to get a steer in a good thrifty condition. That is the best sign I can have that he is a fairly good doer. If he is not in a fairly good condition it is an indication that he is not a really good doer if he has been on good grass.

After getting them we must exercise care in the handling and feeding of these cattle. You might ask when do I market my animals. I agree with the remarks of Prof. Grisdale when he said we would get a higher gain per day during a short feeding period, and possibly if you were near the weigh scales so that there would be no difficulty in getting your animals to the railway, it might be well to occasionally feed for a short period; but, as I am six miles from the scales and oftentimes during the winter the snow is so deep we could not get our animals in proper condition to the scales and would find the gains were not very satisfactory. As a usual thing we find that the prices are better when it comes on to April, May, and June than they are earlier in the winter. I have a supply of feed for my animals so that they can be kept until that time, and as a general rule I have made a practice of feeding them until the end of April or May or the beginning of June.

You must give great consideration to the care of the animals as well as to the ration. No matter what ration we give we will never get satisfactory results unless it is accompanied by the kindest possible treatment. We will never get good results in feeding our animals if we are cruel to them in any respect. I have found that we can get better returns by feeding loose than tied up. but is is a mistake to have too many in a loose pen. Ten or twelve animals are sufficient; I never have more than fourteen or fifteen in a pen. In feeding loose there are always some animals which may possibly not do so well as others and it would be better to remove them and put them in a loose box by themselves. Where you are feeding eight or ten or twelve and only have one loose pen it is more difficult to accommodate these to the method of loose feeding than where you have a large number.

As to the quantity of feed, we are following the lines very largely which have been laid down to you by Mr. Grisdale. Starting in the fall, our first aim is to feed them a lot of bulky succulent food, as much as they will eat, to try and swell out the digestive system. Be sure and not feed them too much grain at the commencement, but gradually increase the grain ration from week to week up to within two or three weeks or a month of the finishing period. Always be sure never to feed the animals more this week than the following week; always keep increasing. Towards the close of the feeding period, while we increase the quantity of grain and clover hay, the amount of roots and silage is reduced and no straw is given. We grow mixed grains composed of wheat, barley and oats, and feed a little of these grains with mill foods (bran and shorts). When we come to the finishing period we add a little ground peas or wheat or a mixture. I have fed oil cake, but find we can get better returns with the ration I am feeding, from ground peas rather than oil-cake.

Q.—Do you mean pound for pound?

A.—Yes. The ration I have here is very similar to what Professor Grisdale has laid down. Anything I give you in the way of a ration is only approximate, no one man can tell another just what his animal should have or what they can take. In going into the stables to look after the animals we must take brains along with us. No herdsman will make a success in looking after animals if he does not use his own good judgment and accompany a ration with the kindest possible treatment.

The ration I am feeding at present amounts to thirty-five pounds ensilage, seven pounds cut straw, two pounds meal and one feed clover hay each day. I make a practice of finishing some of my animals on the grass. The animals finished on the grass get on the average, during the winter, about three pounds of meal each day. It is a mistake if you are going to finish the cattle on the grass to feed too heavy grain rations during the winter. Ground peas fed largely is not a good ration to feed cattle which you intend to finish on the grass. The fattening cattle which are finished in the stable have an average daily meal ration of about six pounds of meal instead of three. In feeding loose we have one long manger divided at every fourth steer with a post to hold the manger in place, and just sufficient feeding space so that when the animals are in there, they will fill it. We do not select the animals particularly when stabled, but sometimes sort them over after they have been in six weeks or so. Twelve months ago I did not change a steer. I have not seen any necessity of changing any of them this year.

We make a practice of cleaning out the stables twice a week. A good litter of straw is given each time they are cleaned out. The stables are arranged so that we can drive in with a waggon or sleigh, load it, and take the manure direct to the field.

Q.—Do you ever feed corn-meal?

A.—Yes, along with the ensilage and grain ration. I would rather feed ground-peas.

Q.—How would black barley do with peas?

A.—Very well, but ground peas bring my ration nearer a balanced one than the black barley would.

Q.—Do you think corn stored away in the barn and fed at this time of the year is as good as ensilage?

A.—Possibly up to the time it gets frozen it is as good but after that time I do not think it compares with ensilage at all.

Q.—Do you turn the steers outside?

A.—The ones we are going to finish in the stables are turned out twice a week when cleaning. Do not keep the tables too hot, it is a mistake. The cattle to finish on the grass, are turned out in the yards in the spring of the year.

Q.—Which pays the best, finishing them in the stable or on the grass?

A.—That depends upon what you are paying for the grass. I find in our section, where we can rent one hundred acres for from $225 to $240, that it pays us rather better to finish these cattle on the grass. With the exception of one or two years, for the last fourteen years we have always been able to get as much off the grass in the beginning of July as we get in the stables. When you have them in the stables you are always wondering if the buyer is going to come along before your feed runs out.

Q.—Do you always sell by the pound?

A.—Yes.

Q.—Do you continue the meal ration when they are on the grass?

A.—No; it has not been our custom of late years to do that. There is no method by which we can make such good gains as by feeding a small ration on the grass if you have the conveniences by which you can do it.

Q.—Is it cheaper to buy a steer at five cents off the grass then five and a half in January?

A.—If you weigh them just off the grass and feed them as well as you can for three weeks in the stable, they will never weigh as much as they did when they went into the stable. I sold three steers a year ago on the 1st of November, and said to the buyer, "We will just take them to the scales and weigh them and you can take them any time. These three steers weighed 3,560 lbs. A storm came on the commencement of the following week and he put them into his stable and fed them for two weeks as well as he could feed them and they just weighed 3,460 lbs.

Q.—You did him up well?

A.—I did not do him at all; this is a lesson I learned by experience. If you weigh cattle and turn them out on the grass in the spring and then weigh them two weeks afterwards you will find that a 1,400 lb. steer will weigh from 120 to 150 pounds less, but after that he will gain rapidly, and the same is true when stabled in the fall.

Q.—How often do you feed?

A.—Three times a day. I have nothing against feeding twice or four times. Some of my neighbors feed as Mr. Grisdale has indicated.

Q.—Do you think they will eat too much at a time if you only feed them twice a day?

A.—I do not think so.

Q.—We can buy Manitoba wheat and corn at the same price. Which is the best?

A.—I think I would buy the corn. There is a danger of the wheat heating.

Q.—Do you ever start your cattle on rape?

A.—No. I have not worked the rape crop into my system of farming, but I am sure from the experience of some of my neighbors that there is no better way of starting them in the fall of the year

Mr. Grisdale: We have fed Manitoba wheat against other feeds, corn amongst them, for several years, and well ground Manitoba wheat with a little bran in it is better than corn.

Q.—Is there not a great difference in the Manitoba wheat?

A.—Frozen wheat is much richer in protein than unfrozen.

Q.—The former speaker said there was $30 profit on Manitoba cattle and you said $24. How do you explain that?

Mr. Grisdale: He got these steers at about $4 and sold them for $7.

Q.—Do you feed hay three times a day?

A.—I feed hay once a day for the first two or three months and twice a day after that.

SANITARY STABLING OF CATTLE.

George E. Day, Professor of Animal Husbandry, Ontario Agricultural College, Guelph.

No one will deny that sound health is one of the most important attributes of either man or beast. There is probably not a man present who would purchase an animal for any purpose if he had reason to doubt the soundness of its health. Unfortunately, however, there are too many of us who are not willing to admit that it is necessary to observe the laws of health in the handling of cattle, for the reason that cattle are able to adapt themselves to a wider range of conditions, and to keep apparently healthy under unfavorable conditions for a longer period of time then most other kinds of stock. The average man, therefore, is very apt to believe that an animal which appears healthy and thrifty is necessarily sound, and it is this point of view which makes so many people careless in connection with the health of their cattle.

It is time, however, that we look at these matters from a different standpoint. We must remember that all things are not what they seem, that the seeds of disease may be sown, and largely developed before the animal shows any clinical symptoms, and that, in the case of slow moving diseases which are fostered under unsanitary conditions, it is usually too late to apply any remedy when the symptoms become apparent. Tuberculosis is a striking example of the class of diseases just mentioned. The man who fondly believes that no tuberculosis exists in his herd because there are no apparent symptoms, and, therefore, regards sanitary precautions unnecessary is liable to receive a rude awakening some day. Many well advanced cases of tuberculosis show no clinical symptoms, and what appears to be a healthy cow, may be a constant source of danger to the herd in which she is kept. We can never afford, therefore, to be lax in our efforts to maintain sanitary surroundings for our cattle, because we never know how or when disease may secretly work its way into our herd, and the wise man will aim to maintain conditions which are unfavorable to the development of disease germs.

Effective ventilation is one of the first requisites of a sanitary stable. Any system of ventilation which depends upon the opening and closing of windows can scarcely be regarded as satisfactory, for the reason that there are times when it is scarcely safe to have windows open, and consequently there are sure to be times when the stable has practically no ventilation. A good system of ventilation works constantly, because it is necessary to have the air frequently renewed during both day and night. No stable can be regarded as fully equipped without some reasonably thorough and systematic method of ventilation.

There are two methods of ventilation which are very generally approved. One of these admits the fresh air at or near the ceiling, and has the outlets so arranged that they draw the foul air from near the floor. It is customary in this system to have openings in the outlet flues near the ceiling which may be opened if the stable becomes too warm. The main difficulty we have experienced with this system of ventilation is to find some method of distributing the fresh air when it comes in near the ceiling without causing cold draughts upon some of the animals. It is also well known that the foul air while it is warm ascends to the ceiling, and consequently having outlets near the floor does not admit of removing the foul air immediately.

The other well known system removes the foul air through flues opening at the ceiling and running up through the roof of the barn, and brings in the fresh air through openings near the floor. The inlets are guarded both outside and inside so as to prevent direct draughts upon the animals, and the outlets, opening as they do at the ceiling, are in a position to remove the foul air immediately it ascends to the ceiling. The outlet flues are better to run perfectly straight from the ceiling out through the roof, and the top of the outlet should be higher than the peak of the roof. Our experience leads us to prefer this system of ventilation to the one first mentioned, though it causes a lower temperature in the stable than the one wherein the foul air is drawn from near the floor. It is simple, inexpensive, and effective, and when properly arranged does not permit of any draughts, which is an important consideration.

Many other systems of ventilation might be discussed but it would scarcely be profitable to do so at this time, and the two systems mentioned are undoubtedly the two best systems known.

It is impossible to have a really thorough system of ventilation without materially lowering the temperature of the stable, and it is this fact which undoubtedly leads many people to neglect thorough ventilation, for the reason that they wish to maintain a fairly high temperature in the stable is necessary to the highest milk production. There may be something in this contention, but, after all, is it worth while to run the risk of ruining the health of our whole herd in order to break a few milk records? From some incomplete experiments, indications are that a high stable temperature for dairy cows is not so necessary as many people suppose. If the air is reasonably dry and pure and the cow is accustomed to the conditions, results of our work would indicate that rather low temperatures apparently do not materially affect the milk yield. Of course, if a cow were taken from a warm stable into a cold one she would suffer, but if she is placed in a well-ventilated stable in the fall and gradually becomes accustomed to a lower temperature as the weather becomes colder, she does not appear to suffer much inconvenience. In fact, it will generally be found that the attendants are the ones who object to the low temperature, rather than the cow. Good, clean air so long as it is not accompanied by draughts is of far greater importance to any cow than a high stable temperature.

There is an advantage in having a fairly cool stable, in that it enables the cows to enjoy a short time out of doors each day without suffering any inconvenience: whereas, if they are kept in a very warm stable it is almost dangerous to turn them out at all, and the chances are that their milk flow will be affected if they are turned out, even for a short time, on a cold day. Outdoor exercise, though it may be for only a few minutes in very extreme weather, is an important means of maintaining the health and vigor of cattle. Those cattle which have regular outdoor exercise are much less liable to contract tuberculosis than those whih are constantly stabled throughout the winter. Constant confinement in a warm, close stable is extremely enervating and tends to lower the vitality of the animal to such an extent that it cannot throw off disease germs so successfully as one which is more rugged. Keeping in cool, dry stables, with daily outdoor exercise, is one of the best preventives of that dread disease, tuberculosis.

Light is another important factor towards maintaining health. Dark stables favor the development of disease germs, whereas, light (especially sunlight) is more or less a disinfectant. Just why it is that so many people are afraid to put large windows in their stables is difficult to understand, unless the small windows are used in order to save expense. A little extra expense in windows, however, is money well invested, and if a farmer once had plenty of large windows put in his stable, I feel quite sure that he would not be willing to go back to the dark stable under any circumstances. A short time ago I had a letter from a farmer who had talked over the matter of windows with me before he built his stable. In the letter he stated that his stable was now completed, and that when he took the window frames home his neighbors laughed at him for using such large windows, but now that the stable is completed, they all agree that his idea is correct. The sooner we get away from the notion that large windows are a detriment to stables, the better it will be for all concerned.

There is one other feature of stabling to which I would like to draw attention, and that is the question of providing special quarters for calves and young cattle. The keeping of calves in a stable that is crowded with other animals is a plan not to be recommended. If there is any disease in the herd, these calves are given every chance to acquire it. Suppose, for example, that there is more or less tuberculosis in the herd, and that our young calves are kept in the same stable with these tubercular animals, and are fed upon tubercular milk, what chance have they to escape the disease? If, on the other hand, they could be kept in a separate shed where they had plenty of fresh air and exercise, they would have a very much better chance of coming through without infection. If a man had any reason to suspect that there was considerable tuberculosis in his herd, I believe it would pay him to keep his calves in a separate building and to feed them upon sterilized milk, never taking them into the other barn until they were practically full-grown. I believe that by following this method a person could in the course of time practically rid his herd of tuberculosis.

Many people are afraid that calves will suffer if kept in a cold place. Experience, however, goes to show that such is not the case. We are keeping at the present time very young dairy calves in a shed that is simply single boarded with battens over the cracks and a straw loft above, and these calves thrive as well as any calves that we have and never seem to suffer any inconvenience. Every winter also we keep some of our young cattle in part of the sheep pen, where it is practically as cold as out doors except that the animals are sheltered from the wind. These young cattle always thrive better than those which are kept in the warmer stable. In fact, an animal that is gaining rapidly in flesh should not be kept in a very warm stable, for the reason that is will suffer from heat. A few weeks ago I visited the farm of a very successful breeder and feeder of cattle, and I also found that he had a number of young cattle in one end of his sheep pen and that his experience was similar to our own. In fact, a person has only to try the method I have suggested in order to be convinced that it is better to give young cattle a cold building where the air is dry and fresh, than to keep them in a warmer stable.

There is, of course, such a thing as going to extremes and we have nothing to say in defense of the man who turns his cattle out into the barnyard and allows them to remain there all day in all kinds of weather. This is not the method I have been commending, but what I would especially urge upon breeders is to give animals protection from the weather, but along with that protection give them plenty of fresh air. Dry cold does not injure cattle, but damp, foul air will sap the vitality of the most rugged animal. If we would bear these two facts in mind and act accordingly, I believe that we would hear less about tuberculosis in the herds of this country. To maintain sanitary conditions in our stables requires some effort and some expenditure of money, but there are few things which are worth having which can be obtained for nothing.

Q.—As long as that watering apparatus in your stable won't freeze you need not trouble about temperature?

A.—No.

Q.—There is no draft with this ventilating system,

A.—Not if you have sufficient inlets.

Q.—In a building 60 x 60 with fifty or sixty head of cattle, what sort of an outlet would you require?

A.—In our stable, about 70 ft. x 100 ft., there are six outlets, each one 12 in. x 24 in. We can tie up about sixty head, and besides that there are some boxes as well as calf boxes. We can put in the stable about 75 or 80 head. We have only five inlets, 12 in. x 16 in. The system seems to be working very well. I do not know that we have absolutely perfect ventilation. We may enlarge our inlets.

Q.—We have been told that the foul air should be drawn from the floor?

A.—I do not think an opening near the floor will take out the foul air as rapidly as an opening at the ceiling. You will find the greatest amount of carbonic acid right at the ceiling. A great many people say that carbonic acid gas is heavier than air, and, therefore, it will fall to the floor. If you take two gases of different specific gravity, it takes them some time to get separated; it is a very slow process at best, and while carbonic acid gas is heavier than the air, at the same temperature, when it is heated as it is when it comes from the animal, it is lighter than air and at once goes up to the ceiling. If you draw from the floor, you have to wait till that gas gradually works down to the floor. In the King system of ventilation, with the fresh air brought in at the ceiling, that has a tendency to force the foul air down towards the floor, but the foul air is not removed so quickly as when the outlets are at the ceiling.

Q.—How high above the floor are the inlets?

A.—Ours are a foot above the floor, but if I were putting in new ones, I would put them exactly on a level with the floor.

Q.—Would not you bring them up through the floor?

A.—No, I do not think I would, because it is expensive, and a hole through the wall is about as cheap as anything you can get. Of course the ideal way is to bring it up through the floor, provided you have a convenient spot to do so.

Q.—How about tile through the wall?

A.—I remember being in a stable ventilated that way one day, and it was very dry and well ventilated, and I thought it was very satisfactory. But I was there on another occasion when the wind was in another direction, and it was very drafty, and I noticed the calves running at the nose.

Q.—Do you think it is better to let the cattle out to water or to keep water in the stable?

A.—I like to water in the stable. If you let them out, the water may be too cold, or some of the weaker ones won't get their share of water.

Q.—On what side of your building do you have inlets?

A.—We have them on two sides, the north-west and the south-east.

The Chairman: Mr. Grislade has had a good deal of experience with ventilation, and I will ask him to say a few words.

Mr. Grisdale: We have a horse barn at the Central Farm that we built five or six years ago, which has two systems of ventilation—the King system, with the intake of fresh air at the ceiling and the outlet at the floor; and the Rutherford system, with the intake at the floor and the outlet in the ceiling. We ran the King system for ten days or three weeks. At the end of ten days there came a cold spell and the ceiling and walls of the horse barn, which were well built of four-ply boards, an air space and three or four papers and the ceiling lined, nevertheless became coated with moisture and frost. The weather continued cold, we changed to the Rutherford system and the ceiling and the walls dried off in about three days. We allowed it to remain with the Rutherford system for three weeks, and then we changed again to the King system and we had a similar experience. We changed again to the Rutherford system and dried it off and have used the Rutherford system ever since. Another advantage in favor of the Rutherford system is the even temperature. I took two thermometers, put one on the floor level where the animals have to lie and the other at the ceiling. The thermometer on the floor level marked forty to forty-five in the case of the King system and that at the ceiling fifty to fifty-five, ten degrees higher. When we put the Rutherford system into operation there was no difference in temperature. We had the same temperature on the floor as at the ceiling, an average and uniform temperature of about forty-five to fifty. These were the two great advantages that I found in favor of the Rutherford as compared with the King; the dry walls and ceilings and the uniform temperature without drafts. In the King system we had more or less down draft. I have tried this King system in comparison with the Rutherford system in a small piggery that we built four years ago, just for experimental purposes in ventilation. I think we have about fifteen systems of ventilation in that piggery, so that you see it is ventilated, and, of all the systems we have tried, the Rutherford system has proved to be the most effective. It is, besides, the most easily controlled of the various systems tried out. One more point, and this is the relation that exists between the number of cattle and the intakes and outlets; one should allow at least eight square inches of inlet and from fourteen to sixteen square inches of outlet for each animal in the stable. A square foot of inlet is sufficient for about fifteen head, and you should have about two square feet of oultet for the same number of cattle in the barn. You should have double the outlet that you have intake.

Q.—You have these intakes just above the floor?

A.—I like them best just at the floor level. We have our intakes along the main passage of the barn, and, to prevent any dirt or dust getting in, we have a little coaming of four or five inches around them so as to keep the sweepings out.

LIGHT AND VENTILATION OF STABLES.

DUNCAN ANDERSON, RUGBY.

What I have to say is the result of some of my own observations along the line of light and ventilation of farm buildings. I can remember when our stock got too much ventilation, around the straw stack. They were left out from the time the children went to school in the morning until they came back in the afternoon. The children put the cattle in, the older people were in the bush doing work. After that we seemed to go to the other extreme, and we put up the buildings as stuffy as we could. There are a good many of these stuffy buildings in the Province of Ontario to-day. I believe the farmers of the Province of Ontario have been spending too much money in putting up expensive buildings for their cattle. I do not believe these expensive buildings are required. Speaking to a rancher out in British Columbia a few years ago, he said to me, "I suppose you people down East think our methods of dealing with cattle are rather cruel." He said, "When our company started the ranching business first we built a number of comfortable sheds, and the results were that when a storm came on the cattle crowded into these sheds and laid close together and they sweated, and then they went out in the open and got chilled, and they made no progress whatever that winter." You often see the same thing in our hog pens: they will crowd together and sweat. The worst kind of a hog pen to have is a damp one.

I made an investigation two years ago as to the winter feeding of cattle in the three Western Provinces. I started it at a place called Pincher Creek, and worked up to McLeod and Edmonton, and from there to Saskatchewan, and finished in the Province of Manitoba. In the whole time I was making the investigation I did not find housed up or tied up one hundred head of cattle. I saw 400 steers on the banks of the High River, forty miles south of Calgary, they were fed in the open, with only a little brush shelter and the thermometer 40 below zero. They were standing there with their heads up and showing straight backs and they had fine coats of hair. They had never been housed, and they had adapted themselves to their conditions. Coming further north, I saw cattle that were left out the whole winter and the thermometer forty or fifty below zero. After seeing these cattle I came to the conclusion that we had gone to the other extreme in this country and were housing our cattle too close. At Binscarth, in Manitoba, a farmer built a new barn and he had 36 steers tied up in it and they had been in about three months. He had that barn equipped with water and a gasoline machine to drive his cutter and crusher, and he was cutting straw and mixing the feed, and his cattle were never out; and, while I must admit there was a little flesh on them, still they looked to me as if they should have a great big bellyfull of something to fill them up. The next day I went down the line to a point called Newdale, where they grow hardly anything but oats, and they have large quantities of oat straw. I went out from Newdale a few miles, and saw a large barn about 90 feet long and 60 feet wide. It had been built some eight or nine years before and there was not a single hoof in the barn, and I said to the farmer, "Where are your cattle?" He said, "They are out on the bluff a mile and a half away." I went to see them; there were about 70 steers there, out in the open, and were being fed on oat straw and roughage, and a mixture of seven pounds of oats and bran, and this was fed outside. They had some little shelter in the brush and went down into the ravine for water. All they got was oat straw, crushed oats, and bran and salt. I do not know that I ever saw cattle looking in better shape, that was some time in the month of March. I do not think it would pay to keep your growing cattle so exposed. When I saw this man with a fine barn and not using it, and feeding his cattle outside, and the cattle doing well, I could not but help come to the conclusion that in the Province of Ontario we had gone too far and were keeping our cattle housed in too close, and we were putting more money into our buildings than we were getting results from.

BUILDINGS FOR SWINE.

J. H. GRISDALE, DIRECTOR DOMINION EXPERIMENTAL FARMS, OTTAWA.

The pig's requirements in the way of shelter are peculiar to himself. He can endure low temperatures, but shivers in the least air current. He can stand the most severe cold, but pines and sickens in damp quarters. He can withstand the most sudden changes in weather, but must have lots of sunlight and plenty of fresh air. He will always thrive with no shelter save a single-board cabin, but often sickens and wastes away in the steam-heated porcine palace. In short, the pig in captivity has not, like practically all other domestic animals, developed the ability to endure the common combination of warmth, humidity, impure air and inactivity that falls too often to his lot.

What the pig requires in his home is an abundance of fresh air, plenty of sunlight, protection from winds, and a well-littered dry nest. Give him these and success is certain even though rations be poor. With right shelter conditions, no farm animal suffers less from disease than the pig; with uncongenial surroundings, no animal can think of more ways to die in one short winter.

The recognition of the above principles may seem easy, and their application a matter of routine, but it seems to take more than ordinary intelligence for the one and untiring watchfulness for the other. Twenty odd years' experience with pigs, in numbers varying from 25 to 500, at the Central Experimental Farm, has taught us a few things in connection with these principles and their application that are of interest and should be of value to the farmer.

SUMMER HOUSING.

The less housing in summer the better, but provide, if possible, a cool shady spot and good wallow. For feeders, as contrasted with breeding and growing stock, less yard room or pasture is required, but some way of assuring moderately cool conditions is necessary. Usually one side of the piggery is cool and may be used. The cabin on legs about three feet high is the thing for breeding stock.

WINTER HOUSING.

Here, again, conditions must be considered from three standpoints: the sow with the litter, the in-young sow, and the stocker or feeder.

The sow in young does best outside, in board cabins for nests. The cabins need not be warmly constructed, but must be well bedded and not expected to accommodate too large a number—from three to five is about right. So housed and fed some succulent food, as roots and suitable meal, as bran, shorts and a small proportion of oats or barley or corn, success is certain.

This suits the pregnant sow, but not the sow and litter. The new-born pig needs more warmth. He cannot endure the rough winds of winter, nor its deep snows. Here is where skill in piggery construction may get full play. The piggery recently built at the Central Experimental Farm would seem to comply with all the requirements and to exemplify all the principles mentioned or discussed. It is too soon yet to know how it is going to work out in practice, since it was completed only last winter. It is at present giving satisfaction with pigs ranging from eight weeks to eight months old. Described briefly, it consists of 19 or 20 pens averaging about 10 by 12 ft., in two rows, on either side of a 6 ft. passage. Windows stand as close as the requirements of strength will allow. Fresh air enters each pen by an inlet on the Rutherford ventilation system plan. The floor of every pen slopes to one point, and so drains off all fluids into a tank. The floor is cement, save the nest, where wooden floors are laid with an air-space underneath. Cement troughs, litter carriers, chutes for straw over each nest, double windows outside, doors hung to open from passage, and various other conveniences combine to make it easily kept clean, bright and, one would think, perfectly sanitary.

For stockers and feeders this piggery is certainly practicable and satisfactory. For farrowing sows and raising young pigs, experience being largely lacking, time alone can tell the tale. We have tried the straw stack. In the West and in many parts of Ontario we grow considerable straw. Wheat straw is not of very great feeding value, probably worth more this year than usual. Now, if you will make a frame a little higher than a table, but instead of having a board top lay a few poles across, leave a narrow opening for a door, then pile straw on top of it, you have the pen made, and I do not know of any better method of wintering pigs. You will notice that there is no provision for ventilation. One might make some provision by running a shaft through the top, but I do not think it is necessary. The air will circulate slowly through the straw, and it seems to be sufficient for the requirements of the pig. We have never done this at Ottawa, because straw is money with us, but on our farms in the West where straw is plentiful we have it in operation every winter and with very satisfactory results. Sows that are wintered in these straw cabins come out in good shape. I can recommend these cabins for any one who has a fair supply of straw, and who does not want to bother building board cabins.

Q.—How do you feed from the passage in your pig-house into the troughs?

A.—We have a swinging door over the trough, the door swings in.

Q.—Are you troubled with rats?

A.—We haven't had any yet.

Q.—Did you ever try a cement floor with plenty of straw on it?

A.—No. We have boards on top of the cement, we find that the pigs burrow down, and they are apt to lay on the cement floor.

A MEMBER: I have had a cement floor for a good many years and I have not had any bad results.

MR. GRISDALE: We allow our cows and horses to lay on the cement floors and we have never had any poor results.

Q.—Do you soak your meal for feeding to the pigs?

A.—We soak the meal, but not very much. We feed roots to the little pigs and we find that it pays to cook the turnips.

Q.—How do you feed the whole grain?

A.—We have fed it dry and wet and soaked and cooked.

Q.—Do you feed it in the troughs or scattered?

A.—We have fed it both ways. If you have the pigs outside and if the ground is fairly clean and if you scatter the whole grain on the ground they like it and do well, and there is not much loss.

A MEMBER: We feed the whole grain on a cement floor and the pigs sleep in the straw stack and we have had excellent results.

MR. GRISDALE: Give the animal something it likes and it will do well. They like crunching something the same as a man does.

Q.—Have you a bulletin with a full description of that piggery?

A.—I have it going into the press; it will be out in a few months.

Q.—How do you keep the steam from the cooker going into the pig pen?

A.—The feed room is part of the piggery. There are no doors and at first we had quite a job to keep the ceiling dry. I put a lid over the cooker with a pipe leading up into the chimney, and we have never had any trouble since.

Q.—What about the capital cost? Would it justify an ordinary farmer in putting up such a building?

A.—This piggery cost us about ten dollars per pig; that is for the number of pigs we can handle in it in a year, counting six months as the life of a pig.

Q.—What do you consider a fair profit on feeding pigs?

A.—About 20 per cent. I would like to make 40 per cent., and we usually do. Last year it cost us $5,000 to feed our pigs and handle them, and we sold $7,000 worth, and had just as many on hand, we cleaned up $2,000. We had to have two men on account of having so many visitors; one man could do it on an ordinary farm. Half the pigs were sold at 8 weeks old to the breeders for $15 a pair. You can come and pick your pigs, that is the price at 8 weeks old. We do not advertise at all, we are always willing to sell and if a man is not satisfied he gets his money back. It is a Government institution, we want to help the farmers.

Q.—Can you give us the profit you made on the pigs that you put on the market, the same as an ordinary farmer?

A.—Yes, we find that we make about $2 per pig. We are always experimenting. We very seldom take a bunch of pigs, and feed them so as to make the most money possible out of them. I am at present feeding 80 pigs, and we have 16 lots of 5 pigs each and we are feeding them all differently. I expect to make $2 a pig. Last year we made over $2 per pig. We pay one of our men $50 per month and the other $45.

Q.—How much do you spend in grain to produce a pound of pork?

A.—If we are feeding on meal, it takes from 4 to 5½ lbs. If we are feeding that along with skim milk or mangles or cooked turnips or some other succulent food, it will probably only take three pounds in addition to the milk or roots. Feeding with the skimmed milk and turnips lowers the cost materially. Feeding the meal alone is expensive and feeding raw turnips is usually expensive.

Q.—What is your favourite breed of hogs?

A.—Tamworths, Yorkshires and Berkshires. We sometimes cross them, but not very often.

Q.—On an average won't a cross bred hog do better?

A.—Yes, it is worth ten per cent. more.

CARE, GRADING, AND MARKETING OF WOOL.

W. T. Ritch, Department of Agriculture, Ottawa.

Instead of giving a lecture, I think I can serve the purpose better by giving a short account of our investigations, and a sort of forecast of what will be in the report that you will get about the 20th of next month.

We commenced investigating on the 1st August, 1910. I was on the territory two or three weeks in advance of Mr. Dryden, and during that time I visited wool sales and various shipping places and markets. As soon as Mr. Dryden arrived we visited all wool centers and a large number of farms in England, Scotland, Wales and Ireland. We returned to Canada on the 1st November and wrote our preliminary report. We met a great number of sheep breeders in the different places, and we are indebted to them for much of the information we got. On finishing in Ontario we went to the Maritime Provinces and continued our work there, and then we came back to Ottawa and gave a short account of what we had done and arranged our programme for the West. We went from Ottawa to Winnipeg, and commenced to work towards the coast. The shows were on in the West, and we visited the Brandon and Regina Winter fairs, and a few of the leading centres, and then we went to Maple Creek. By the time we got there, the weather was getting fine, and we had an opportunity of motoring on the prairies and of seeing the sheep under winter conditions. After going as far as Calgary and Edmonton and Northern Alberta, we struck into British Columbia. Our first stop was at Kamloops and we visited some of the sheep farms in that district. From there we went to New Westminster and visited a few farms in that district. There, we saw some of the great opportunities that await sheep farmers in the rich grazing lands of the Frazer River Valley. From there we went to Vancouver and Victoria. We visited several places in Vancouver Island, and we found conditions there suitable for sheep raising. We believe that the greater part of British Columbia and Vancouver Island will be exactly the same as in the south of England where they have not got winter conditions to contend with. The only drawback is the fact that most of this Province is covered with timber. There is no reason why a sheep farm in many parts of British Columbia and Vancouver Island could not be conducted on English lines.

From British Columbia we went to the United States. We first went to Washington and worked in the Western and Northern States along the line of the Canadian border. We visited the leading ranches, stock markets and wool markets, and went right through to Boston. From there, we again visited the Maritime Provinces because the weather was very severe when we were there before and we considered it necessary to investigate summer grazing conditions there. We noticed many abandoned farms in the Maritime Provinces, and we are of the opinion that they could be utilized for sheep farms. There is a large amount of hill country there that is unsuitable for ordinary farming but which could be made profitable for sheep farming. We spent several days driving among the abandoned farms. After completing our investigations we came back to Ottawa to write our report. The preliminary report of Canada and the United States was handed to Dr. Rutherford, and while he and the Minister of Agriculture were reading it, we commenced our final report for publication. About the 1st September we were getting very well through with our condensed report, and were even at the closing chapters when the election took place. As the closing chapters were finished after the elections, the new Minister of Agriculture then read the report and ordered it to be printed. You will find that the report contains a few surprises and a good deal of practical information.

I want you to read this report carefully, becauses the future success of the sheep industry in this country depends on the way you act on the information and the recommendations it contains. This is the first time that the sheep industry has had real attention in this country, yet it should have been one of the first things to receive attention, because there is nothing that makes such regrettable reading in the history of agriculture in Canada as the sheep industry. When the population was little more than half of what it is to-day, we had double the number of sheep we have now. At one time we had nearly four millions, and to-day we are down to two millions one hundred and sixteen thousand. These are the figures we got from the Provincial Departments of Agriculture, but I scarcely think we have quite two million sheep in the country at present. When I was in South Africa before the war, they only had about three and a half million sheep in the Orange Free State and the Transvaal. During the war there was a large decrease. To-day, there are over eight million sheep in the Orange Free State, and nearly three million in the Transvaal, while Cape Colony has seventeen million sheep. The sheep population of Australia is about one hundred and five millions, and New Zealand, with a white population not exceeding that of Montreal and Toronto, has twenty-eight million sheep and lambs. Argentina has over sixty-seven million sheep, and even unprogressive Russia has sixty-five millions.

The Canadian section of our report deals fully with the market situation in the various Provinces and tells how wool is handled in Canada. We have also described sheep farming in the United States, and given some useful information about wool growing and marketing especially in the Western States. They have nearly fifty million sheep in the United States, but their methods of handling and marketing wool are behind those of other sheep farming countries.

Considerable information will be obtained by studying the methods of handling and marketing wool in Great Britain and Australasia.

Immediately after the publication of the report, sheep farming and wool growing will receive special attention, and I trust that it will very soon be one of the largest and most popular branches of agriculture in Canada.

I hope you will all receive copies of the report, and if any of you happen to be omitted, do not fail to secure one by writing a post card to the Live Stock Branch at Ottawa.

HARDY STRAINS OF ALFALFA FOR ONTARIO.

C. A. Zavitz, Professor of Field Husbandry, Agricultural College, Guelph.

It is possible that some of you may think that the alfalfa problem in Ontario is receiving undue attention. I have no apology to make, however, in appearing before you to discuss this question for the third time in the last four years. The importance of the subject justifies the attention which it is receiving. Many of the failures in alfalfa growing in Ontario have resulted from the lack of information as to how the crop could be grown in the best possible way. Although we still have much to learn, we are constantly gleaning information which should prove of service. From correspondence which I have had recently with seedsmen in Ontario, it is learned that the demand for alfalfa seed has doubled in the last two or three years. In regard to this great increase in the demand there appears to be a danger of securing tender strains of alfalfa which will not prove very successful in Ontario. I therefore consider it my duty to bring before you the best results which I can in regard to the different strains of alfalfa and to draw particular attention to those which have been found to be the most hardy in this climate.

My address three years ago dealt with alfalfa from the standpoint of its large yields of nutritious feed for farm stock, its perennial character of growth, its beneficial influence on the soil, and its method of cultivation. In that address, the results of experiments conducted at the Ontario Agricultural College were presented and discussed.

In the address presented last year, the production of alfalfa seed in Ontaio was given attention. In that address it was stated that alfalfa seed production in this Province was becoming more and more an important industry, especially in a few districts which seemed to be admirably suited to seed production. In nearly all instances the farmers converted the first crop of the season into hay and obtained seed from the second growth. The average yield of seed per acre was slightly over two bushels and the average price realized by the farmers, over a series of years, was about $9 per bushel or $18 per acre.

The information which is furnished in the address this year has been obtained from experiments which have been conducted at the Ontario Agricultural College and elsewhere, and also by recent visits to and correspondence with a large number of practical alfalfa growers in the Province of Ontario.

Classification of Alfalfa.

The whole number of species of alfalfa is quite limited, and for our present consideration only two need to be mentioned; viz., the Common alfalfa, *Medicago sativa,* and the Yellow Flowered alfalfa, *Medicago falcata.* The Common alfalfa has been grown extensively in many of the countries of the world in which the climate is not too severe. It possesses plants of an upright growth, flowers which are violet in color, and seed pods which are in the form of coils or spirals. The Yellow Flowered alfalfa grows wild in a number of the countries of Europe and Asia. Its use as a cultivated crop has been limited. The plants have a spreading habit of growth and are considered to be quite hardy. The flowers are yellow in color, and the pods are in the form of a crescent or a sickle.

Variegated Alfalfa.

Alfalfa plants are naturally cross-fertilized; hence, if plants of the Yellow Flowered alfalfa are grown in the midst of or in near proximity to the Common variety, there is at natural crossing or mixing of the two kinds of alfalfa. The apparent ease with which natural cross-fertilization takes place, explains the reason for the existence of the different kinds of alfalfa plants which vary more or less in their characteristics, particularly in their color of flowers and in their evident hardiness. Some of these hybrids which have received distinct names have been grouped into a general class which is now known as Variegated alfalfa. The United States Department of Agriculture has imported several lots of Variegated alfalfa from Europe and from Asia for experimental purposes. Besides these, we have in America the Sand Lucerne of commerce, the Grimm alfalfa of Minnesota, and the Canadian Variegated alfalfa of Ontario, each of which has made high records in experiments conducted in Canada and in the United States. It is probably safe to say that the Grimm alfalfa of Minnesota and the Canadian Variegated alfalfa of Ontario are the two hardiest and most important varieties of alfalfa, the seed of which can be bought in Canada and in the United States.

Sand Lucerne has been recognized in Europe as a distinct variety for more than half a century. It received its name from the supposition that it was particularly suited to the sandylands of Germany. According to the early descriptions of Sand Lucerne, and the examinations which have been made more recently of what is supposed to be the original type, there are marked variations in the character of growth and in the color of flowers of the individual plants. The Sand Lucerne of commerce, however, of which fully a dozen different lots imported from Europe and obtained mostly from Brand and Westgate of the Department of Agriculture at Washington, are under experiment at the Ontario Agricultural College at the present time, possesses much less variation in plant characters than is found in the pure Sand Lucerne. The plants from the commercial seed more closely approximate the Common alfalfa. This has likely been brought about by the Sand Lucerne and the Common alfalfa being grown in near proximity to each other, and thus permitting additional cross-fertilizations to take place. It is even extremely probable that the commercial Sand Lucerne seed has been mixed or adulterated with common alfalfa. It is a question, if, in some instances, the samples which are now offered through the American seed trade as Sand Lucerne are not identical with the Common alfalfa. The Sand Lucerne is advertised by only a few of the seedsmen on the American continent and its sale appears to be quite small. The presence of buckhorn in most lots of this seed also constitutes a disadvantage in its use.

The Grimm alfalfa was brought from Baden, Germany, to Minnesota in 1857, where it has been grown since that time. It shows variegated characters and has proven very hardy and well suited to northern conditions. This hardiness is probably due, in part, to the natural crossing of the Yellow Flowered alfalfa with the Common variety, and party to the natural selection which has been brought about by the continuous growing of this alfalfa in the cold climate of Minnesota.

It is known that the Canadian Variegated alfalfa is grown by farmers in certain parts of the counties of Lincoln, Welland, and Haldimand, and it is probably grown to a limited extent in some of the other counties of Ontario. In many sections of the Province, however, the Common and more tender variety from the Western States has been introduced in recent years. The Common alfalfa of the South Western and the central Western States traces its history largely to South America, from which country it was brought to California about fifty years ago. The early history of alfalfa growing in Ontario is both interesting and important as it has a direct bearing on the future production of alfalfa in this Province.

In 1871, the late Mr. Nehemiah Bethel, who was a noted farmer and stockman living near Thorold, Ont., secured two pounds of alfalfa seed from Lorraine, France. This he sowed with great care on his farm in Welland County. From seed which he grew, he increased his acreage from year to year, and it is stated that in 1877 he had 70 bushels of seed from a little less than ten acres of land. In that year, he forwarded a sample of his alfalfa seed to the Exhibition in Paris, France, for which a diploma was granted. This strain of alfalfa is still being successfully grown in Welland county, where a number of old fields are to be found.

In 1875, Dr. J. W. Colver, Wellandport, Lincoln Co., imported from Baden, Germany, fifty pounds of alfalfa seed. Of this amount, he sowed twenty pounds on his own farm and gave the rest to farmers in at least four different counties. Up to the present time we have not been successful in tracing the history of any of the alfalfa now grown in the Niagara Peninsula back to the importation of Dr. Colver. It is interesting to note that the seed imported by Dr. Colver came from the same part of Germany as that brought out by Mr. Grimm and which was sown by him in Minnesota.

Although a few of the Ontario seedsmen began to introduce alfalfa seed in the limited way from the years 1875 to 1885, no information has been secured showing any connection between the crops which are being grown at the present time and the seed which they introduced.

It seems evident that the introductions of both Mr. Bethel and Dr. Colver were those of the Variegated alfalfa, and that these two introductions have had a marked influence in the successful growth of this important crop in the Niagara Peninsula, where there are now numerous fields which have produced crops of alfalfa continuously for from ten to twenty or more years without re-seeding.

A few years ago, Mr. J. M. Westgate, of the Department of Agriculture at Washington, obtained some samples of Canadian alfalfa which gave high results in experiments which were conducted under his supervision. These samples he traced back to Putnam & Son, Silverdale Station, Ont., and found that the alfalfas had been grown in that vicinity. Mr. Westgate visited the Niagara district in 1907, and there he found fields of Variegated alfalfa which were giving excellent satisfaction. He obtained samples from three different farms, two of the samples being the Variegated variety and the other the Common Violet alfalfa.

Experiments have been conducted in a few places in the United States in which Canadian Variegated alfalfa has been compared with other varieties. The Canadian Variegated alfalfa gave the highest results of the different kinds which were under experiment at Great Falls, Montana; Walhalla, North Dakota; and at the Michigan Agricultural College Sub-Station. At Dickinson Sub-Station, North Dakota, however, the Canadian Variegated alfalfa was surpassed by four other varieties. Mr. Brand, of the Department of Agriculture at Washington, explains in Bulletin 185 that the Canadian alfalfa did not have as good a chance as the other varieties at the Dickinson Sub-Station owing to unfavorable conditions of the soil where the Canadian alfalfa was grown. Other experiments are being conducted in the United States, and results will likely be available in a short time.

RESULTS OF EXPERIMENTS CONDUCTED AT THE ONTARIO AGRICULTURAL COLLEGE.

Several series of experiments with different varieties and strains of alfalfa are at present being conducted in the experimental grounds at the Ontario Agricultural College. One series has been running for seven years, another for four years, and another for three years. As all of the particular varieties and strains which we are considering at the present time are included only in the experiment which was started in the spring of 1909, the results here presented will be confined to that experiment. In this experiment, 19 plots of Sand Lucerne, 4 plots of Grimm alfalfa, and 2 plots of Canadian Variegated alfalfa were included. The average results of the different plots of each of these three varieties show the following yields of hay per acre in each of the past two years.

Varieties.	Number of plots.	Tons of hay per acre.		Average.
		1910	1911	
Sand Lucerne..........................	19	3.2	2.3	2.75
Grimm Alfalfa	4	3.3	2.4	2.85
Canadian Variegated Alfalfa............	2	3.5	2.1	2.80

Owing to severe weather conditions, the yields of alfalfa hay were comparatively low in each of the two years, the average for the past fourteen years being about 5 tons of hay per acre per annum at the Ontario Agricultural College. It will be seen that the three noted varieties of hardy alfalfa have given very similar results. When we take into consideration the results of the Variegated alfalfa in both the United States and Canada, it will be seen that it has made an excellent record.

Another table is here presented which gives the detailed results of the different kinds of alfalfa obtained in the United States, of the three Canadian alfalfas, the exact sources of which are known, and of the one sample of alfalfa from South America.

ALFALFA OR LUCERNE, O.A.C., 1911.

Country.	Strain.	Tons of hay per acre.	
		1910	1911
Peru	Peruvian	2.6	.0
U.S	Grimm, Minnesota	3.6	2.7
U.S. Common...........	Texas................................	2.1	.5
	Utah.................................	2.6	.6
	Colorado	2.1	.4
	Nebraska	2.5	.6
	Montana..	2.4	1.0
U. S. Special...........	Variegated, Kansas	2.2	1.2
	Wheeler, S. Dakota	3.1	2.5
Canada	Variegated, Ontario	3.4	2.0
	Common Violet, Ontario	3.2	.8
	Variegated, Ontario...................	3.6	2.2

In the tabulated results here presented, we see the great difference in yields between the Peruvian and the Grimm varieties of alfalfa. Here we have a comparison in the results of a tender southern alfalfa and a northern hardy variety. The Peruvian alfalfa, with the exception of a few plants, was all killed out in the severe winter of 1910-1911; while under similar conditions, the Grimm alfalfa survived the winter with almost a perfect stand of plants.

Of the five different lots of Common alfalfa obtained in the United States, from Texas in the south to Montana in the north, the results show the influence of the winter killing to a very marked degree. The Montana alfalfa, which withstood the winter the best of these five lots, is considered to be one of the very hardiest of the commercial strains of the Common western alfalfa.

The two lots of alfalfa from Kansas and South Dakota have been noted for their hardiness in those states in which they have been tested. The sample from South Dakota gave particularly good results at Guelph, displaying hardiness to a marked degree.

The three lots of alfalfa from Ontario show very interesting results, the two Variegated lots coming in the same class for hardiness as the Grimm alfalfa of Minnesota and the Wheeler alfalfa of South Dakota. The two most important points, however, in connection with this experiment appears to be the superiority in hardiness of first, the Canadian Variegated alfalfa over the Common Violet alfalfa of the United States, and second, the Canadian Variegated alfalfa over the Common Violet alfalfa of Ontario.

Taking into consideration the results both in the United States and in Canada, we have much evidence to show that the Ontario Variegated alfalfa is particularly hardy and is worthy of very special attention in the Province of Ontario.

Q.—What would be the best way to secure some of that variegated alfalfa seed?

A.—One way is to write to H. A. Putnam & Son, of Silverdale Station, Ontario.

Q.—Which grows the best seed the first or second cutting?

A.—As a rule, nearly all the farmers of Ontario make hay out of the first cutting and use the second cutting for seed. They usually get from two to two and a half tons of hay per acre from the first cutting, and about two bushels of seed per acre from the second cutting each year, but sometimes as high as seven bushels of seed per acre is obtained from the one cutting.

Q.—Should not the land be manured?

A.—It is better to be manured. Some farmers have fields from eight to twenty years of age. Some of them have top dressed but others have not. Some of those who have topped dressed say there is an advantage in doing it. Others say much caution should be used in top dressing, especially with fresh manure, or, weeds may be introduced by means of the seeds in the manure.

Q..—What about putting lime on the land?

A.—It is very important to have lime in the soil, but as near as I can make out, through the southern part of Ontario, the soil does not lack lime as it does in sections of the United States or in Parry Sound or some of the other northerly districts of Ontario. I have received correspondence from three hundred and sixteen farmers in Ontario, and out of that number over three hundred of them have not used lime. We have a lime-stone formation in much of Ontario.

Q.—How about land plaster?

A.—I do not think it is essential or even important. We have excellent results without it.

Q.—Will the same field of alfalfa grow seed year after year?

A.—If the location is suitable and the conditions for growth are favorable, it will grow Alfalfa year after year without re-seeding.

Q.—From the first year?

A.—No, not from the first year of seeding. I know fields that have produced a crop of hay and also a crop of seed every year for eleven and twelve years without any interruption. Some years are off years. Last year was the poorest year for seed in Ontario for nine or ten years. The seed brings about eighteen dollars per acre per annum, under average conditions, and this is in addition to the crop of hay. In some years the value of the seed per acre is much higher than this, and in some years it is less.

Q.—Is a gravelly soil necessary?

A.—No. Alfalfa is doing wonderfully well in sections of Lincoln and Welland and Haldimand on the heavy clay knolls. It does not do so well on the low lands. Alfalfa will not live long where the water stands.

Q.—Some are afraid of alfalfa stopping up the tile drains?

A.—That seldom, if ever, occurs.

MR. HUNTER: I have grown it eight years over tile, and I have had no difficulty.

PROF. ZAVITZ: How do you like alfalfa?

MR. HUNTER: I would not like to be without it.

PROF. ZAVITZ: On the right kind of soil it is certainly a great crop. When among the alfalfa growers this summer I heard men say that they would feel like giving up farming if it was not for alfalfa.

Q.—Would you advise sowing alfalfa on land that could not be drained lower than two feet?

A.—It is not likely that alfalfa would live more than two or three years if the roots could not go down more thar about twenty inches. You must have a comparatively dry soil.

Q.—Will it stand pasturing?

A.—Yes, and no. In most cases I would not advise pasturing. If a man has been growing alfalfa for some time and knows exactly what he is doing, and if the roots have not been heaved through the action of the frost, the crop might be pastured to a limited extent if done with much caution. Many a good stand of alfalfa has been killed by pasturing.

MR. SMITH: There has been more alfalfa killed in that way in Ontario than in any other way.

Q.—Is it hard to cure?

A.—A little harder to cure than red clover.

Q.—If you buy seed from Putnams, would you be sure to get this special strain?

A.—They know more about the Variegated alfalfa at the present time than any other alfalfa dealers in Ontario, that I know of. I think they are reliable people. They are farmers themselves, and they buy, clean, and sell alfalfa seed. In recent years they have been shipping much of the seed to Buffalo. I certainly think we should retain that seed in Ontario instead of obtaining the seed of the tender alfalfa from Utah, Nebraska, Colorado, etc.

Q.—Does the seed require a culture?

A.—If you are starting to grow alfalfa, it is exceedingly wise to treat the seed with the proper bacteria. It can be done at a cost of only about eight cents per acre. In many cases the treatment has a marked influence. After you become an extensive and successful alfalfa grower and the soil on the farm becomes well inoculated with the proper kind of bacteria, it will not be necessary to inoculate.

FEEDING ALFALFA.

George E. Day, Professor of Animal Husbandry, Ontario Agricultural College, Guelph.

Green alfalfa is a product of fairly uniform composition and for a green crop is characterized by a very high percentage of protein, being considerably richer in protein than red clover. Owing to its rapid growth and the frequent cuttings which may be made during the season, coupled with its high feeding value, it is perhaps the most valuable crop which we have for soiling purposes. A small plot of alfalfa situated near the stable furnishes a remarkably large quantity of valuable feed for anything which may be stabled during the summer, more especially cattle or hogs. Green alfalfa should be fed very sparingly to horses, as there is a danger of causing colic. A small amount, however, is beneficial in giving a variety to the ration of the horse.

Alfalfa hay, like all other kinds of hay, varies considerably in composition, depending upon the stage at which it is cut and the weather which prevails during the time of curing. A few showers of rain will, however, materially detract from the value of the crop; but though the hay may be seriously damaged by rain or other cause, it will still retain a high feeding value as compared with other classes of hay.

To get an idea of the relative value of alfalfa hay, it may be well to compare it with a well known concentrated food, such as wheat bran. The following tables show the composition of alfalfa and wheat bran, and the digestible nutrients of these two foods. These figures have been taken from Henry's "Feeds and Feeding," and while, no doubt, some samples of alfalfa hay would show a lower feeding value than the figures quoted here would denote, at the same time other samples might show even a higher percentage of digestible nutrients.

Composition.

—	Crude Protein,	Carbohydrates.		Fat.
		Fibre,	Nitrogen. Free Extract.	
	Per Cent.	Per Cent.	Per Cent.	Per Cent,
Bran	15.4	9.0	53.9	4.0
Alfalfa Hay	16.3	27.1	39.2	2.4

DIGESTIBLE NUTRIENTS.

——	Crude Protein.	Carbohydrates.	Fat.
	Per Cent.	Per Cent.	Per Cent.
Bran	11.9	42.0	2.5
Alfafa Hay	11.7	40.9	1.0

It will be noticed that under "composition," the carbohydrates have been separated into fibre and nitrogen-free extract. The fibre of a food is the most difficult to digest, and consequently is lower in value than the nitrogen-free extract. If we take the total carbohydrates and total protein, it will be seen that the alfalfa shows higher percentages of these constituents than bran. The presence of the much larger amount of fibre in alfalfa tends to decrease its relative value, and perhaps it would scarcely be safe to say that average alfalfa hay is equal to bran in feeding value, though it approaches bran very closely.

Under digestible nutrients, we find that alfalfa falls off somewhat compared with bran, though it approaches it very closely.

It is impossible in a short paper to review much of the experimental work with alfalfa, but it will be necessary to cite a few cases in order to demonstrate the high value of this crop. At the present time, we have some work in progress in our dairy stable and though this work is not complete it has proceeded far enough to enable a person to make comparisons.

Up to November 18th, we were feeding our dairy herd mixed hay, straw, silage, and a meal ration which we believed necessary in order to maintain a reasonable flow of milk. The meal ration varied in individual cases, as the tables which follow show. On November 19th, we changed the bulky ration to alfalfa hay and silage, and as the tables show we made a very material cut in the amount of meal. The alfalfa feeding covers a period of three weeks, and is called Period 2 in the tables. For comparison we are using the eighteen days preceding November 19th, namely, from November 1st to 18th, which we call Period 1. The tables show the length of time the cow had been milking previous to November 1st, her average daily milk yield from November 1st to 18th, inclusive (which we call Period 1), and her average daily milk yield from November 19th to December 9th, which we call Period 2, and which covers the period of alfalfa feeding.

Group 1 which follows is made up of five of our larger Holstein cows. These cows were comparatively fresh and were giving a fairly heavy flow of milk and consequently were receiving what we call a full meal ration. It will be noticed that during Period 1 they were receiving 4.5 pounds of bran, 3 pounds cotton seed meal, and 0.5 pounds oil cake, or a total of eight pounds of meal per day. During Period 2 the meal ration is cut down to three pounds of cotton seed meal, the balance of the ration being made up of alfalfa and silage. The following table shows the results obtained under the change:

GROUP I.—HOLSTEIN.

Cow.	Days since Calving.	Period I. Nov. 1 to 18, inclusive. 18 days.	Average Milk per day. Period I.	Period II. Nov. 19 to Dec. 9, inclusive. 21 days.	Average Milk per day. Period II.
	Days,		Lbs.		Lbs.
No. 142...	18	Mixed hay 17 lbs....... Straw, 4 lbs........... Silage, 25 lbs.......... Bran, 4.5 lbs........... Cottonseed meal, 3 lbs.. Oil cake, 0.5 lb.	45.6	Alfalfa hay, 25.5 lbs... Silage, 35 lbs. .... Cottonseed meal, 3 lbs..	43.4
No. 109...	161	Mixed hay, 17 lbs...... Straw, 4 lbs. .... Silage, 25 lbs.......... Bran, 4.5 lbs. .... Cottonseed meal, 3 lbs.. Oil cake, 0.5 lb........	35.5	Alfalfa hay, 25.5 lbs... Silage, 35 lbs.......... Cottonseed meal, 3 lbs..	34.
No. 76...	130	Mixed hay ,17 lbs. ..... Straw, 4 lbs........... Silage, 25 lbs. .... Bran, 4.5 lbs.......... Cottonseed meal, 3 lbs.. Oil cake, 0.5	38.6	Alfalfa hay, 5.5 lbs.... Silage, 35 lbs.......... Cottonseed meal, 3 lbs..	39.2
No, 143...	140	Mixed hay, 17 lbs...... Straw, 4 lbs........... Silage, 25 lbs.......... Bran, 4.5 lbs........... Cottonseed meal, 3 lbs.. Oil cake, 0.5 lb.	40.4	Alfalfa hay, 25.5 lbs... Silage, 35 lbs.......... Cottonseed meal, 3 lbs..	40.4
No. 141...	34	Mixed hay, 17 lbs...... Straw, 4 lbs........... Silage, 25 lbs.......... Bran, 4.5 lbs.......... Cottonseed meal, 3 lbs.. Oil cake, 0.5 lb........	39.2	Alfalfa hay, 25.5 lbs... Silage, 35 lbs.......... Cottonseed meal, 3 lbs..	38.

Referring to the table, we find that one cow actually increased during the second period. Another cow gave exactly the same daily milk yield, while the remaining three decreased very slightly, the decrease being not more than the normal decrease due to advancing lactation. This group, therefore, shows that the alfalfa is capable of maintaining the milk flow in fairly heavy producers under a very light meal ration.

Group 2 also comprises Holstein cows, but they were somewhat lighter cows than those in Group 1, and some of them had been milking for a long period. It will be noted that the rations fed these cows varied considerably. Nos. 119 and 159 were getting the same rations as the cows in Group 1, but the other cows were receiving less meal during Period 1. In the second period, cow No. 111 is of especial interest. This cow, it will be noticed, had been milking for a long time, and was not giving a large amount of milk. During the second period she was fed no meal, yet during this period of three weeks she maintained her milk flow quite as well as during the period when she received a moderate amount of meal, making a slight allowance for natural decrease due to advancement of lactation. Three of these cows gave practically the same amount of milk per day during both periods, and the remaining two have held their own, affording further evidence of the effectiveness of alfalfa hay. The following table shows details of Group 2:

GROUP II.—HOLSTEIN.

Cow.	Days since calving.	Period I.—Nov. 1st to 18th, inclusive. 18 days.	Average milk per day. Period I.	Period II.—Nov. 19th to Dec. 9th, inclusive. 21 days.	Average milk per day. Period II.
	Days.		Lbs.		Lbs.
No. 111...	354	Mixed hay, 17 lbs... Straw, 4 lbs........ Silage, 25 lbs........ Bran, 2.6 lbs....... Cottonseed meal, 1.8. Oil cake...........	18.8	Alfalfa hay, 25 lbs... Silage, 35 lbs....... No meal...........	17.2
No. 86...	157	Roughage as above.. Bran, 2.66 lbs...... Cottonseed meal. 2 lbs.	29.2	Roughage as above.. Cottonseed meal, 3 lbs.	27.3
No. 119...	127	Roughage as above.. Bran, 4.5 lbs....... Cottonseed meal, 3 lbs. Oil cake, 0.5 lb.....	34.1	Roughage as above.. Cottonseed meal, 3 lbs.	34.5
No. 159...	38	Roughage as above.. Bran, 4.5 lbs........ Cottonseed meal, 3 lbs. Oil cake, 0.5 lb......	29.6	Roughage as above.. Cottonseed meal, 3 lbs.	29.5
No. 120...	365	Roughage as above.. Bran, 2.66 lbs....... Cottonseed meal, 2 lbs.	26.1	Roughage as above.. Cottonseed meal, 2 lbs.	26,2

Group 3 was made up of Jerseys which, owing to their smaller size, took a somewhat lighter ration. The table which follows shows results of the change in feed:

GROUP III.—JERSEY.

Cow.	Days since calving.	Period I.—Nov. 1 to 18, inclusive. 18 days.	Average milk per day. Period I.	Period II.—Nov. 19th to Dec. 9th, inclusive. 21 days.	Average milk per day. Period II.
	Days.		Lbs.		Lbs.
No. 131...	280	Mixed hay, 15.5 lbs. Straw, 4 lbs........ Silage, 25 lbs...... Bran, 1.5 lbs........ Cottonseed meal, 1.5 lbs...............	15.	Alfalfa hay, 22 lbs.. Silage, 25 lbs....... No meal...........	12.
No. 130...	203	Mixed hay, 15.5 lbs. Straw, 4 lbs........ Silage, 25 lbs. ...... Bran, 1.5 lbs. ...... Cottonseed, meal, 1.5 lbs...............	14.9	Alfalfa hay, 22 lbs.. Silage, 25 lbs....... No meal...........	14.1
No. 138...	138	Roughage as above.. Bran, 2.6 lbs....... Cottonseed meal, 1.8 lbs............... Oil cake, 0.5 lb......	23.8	Roughage as above.. Cottonseed meal, 1 lb.	25.3

GROUP III.—JERSEY.—*Continued.*

Cow.	Days since calving.	Period I.—Nov. 1 to 18, inclusive. 18 days.	Average milk per day. Period I.	Period II.—Nov. 19th to Dec. 9th, inclusive. 21 days.	Average milk per day. Period II.
No. 123...	40	Roughage as above.. Bran, 2.6 lbs....... Cottonseed meal, 1.8 lbs.............	21.1	Roughage as above.. Cottonseed meal, 1 lb.	19.1
No. 132...	139	Roughage as above.. Bran, 2.6 lbs...... Cottonseed meal, 1.8 lbs.............. Oil cake, 0.5 lb.....	22.6	Roughage as above.. Cottonseed meal, 1 lb.	21.

It will be noticed that two of these cows received no meal during the second period, and the other three received only one pound per day during the second period, yet every cow has maintained her milk flow in a normal manner, and one of them actually increased. Group 3, therefore, fully corroborates the results of the two preceding groups.

Group 4 contained four Ayrshire cows, two of which have been milking for a long period. It will be noted that during the second period these two cows, namely, 156 and 136, received no meal, yet one of them gave a slightly higher average during the second period and the other held her own. In the case of the other two cows, both have held their own in milk production under the reduced meal ration. The following table shows details:

GROUP IV.—AYRSHIRE.

Cow.	Days since calving.	Period I, Nov. 1 to 18 inclusive, 18 days.	Average milk per day. Period I.	Period II. Nov. 19 to Dec. 9th, inclusive, 21 days.	Average milk per day. Period II.
	Days		Lbs.		Lbs.
No. 118...	32....	Mixed hay, 15.5 lbs... Straw, 4 lbs........ Silage, 25 lbs....... Bran, 3.5 lbs....... Cottonseed meal, 2 lbs	31.3	Alfalfa, hay, 23 lbs. Silage, 25lbs ...... Cottonseed meal, 3lb	30.4
No. 135...	144....	Roughage as above . Bran, 2.6 lbs....... Cottonseed meal, 1.8 lbs............... Oil cake, 0.5 lbs	21.7	Roughage as above Cottonseed meal, 1 lb	20.2
No. 156...	258....	Roughage as above.. Bran, 1.5 lbs ...... Cottonseed meal, 1.5 lb	14.6	Roughage as above. No meal	15.
No. 136...	365....	Roughage as above.. Bran, 1.5 lbs....... Cottonseed meal, 1.5 lb...............	16.	Roughage as above No meal	15.1

According to investigations of American Experiment Stations, the normal monthly decrease in the milk flow varies from 5.8 to 12.3 per cent., depending mainly upon the length of time the cow has been milking, the smaller shrinkages occurring in fresh cows and the larger in cows that have been milking for nine or ten months.

If we examine our results, therefore, in the light of these figures, it will be found that in no case has the decrease (where decreases have occurred) exceeded what might be expected under normal circumstances when a cow is receiving a sufficient quantity of food.

The four groups contain nineteen cows, and it is certainly remarkable that every cow, without an exception, has maintained her milk flow up to the normal point under the change of rations.

It is a well known fact that some successful dairymen do not feed any meal to their cows when they are feeding alfalfa hay of good quality. Our results would indicate that their practice is quite justifiable, especially with cows giving only a moderate amount of milk. In order to hold a large producer up to her full milk flow, no doubt it would be necessary to feed a meal ration; but in the case of cows giving less than forty pounds of milk per day, it is questionable whether the feeding of a meal ration would be found profitable when first-class alfalfa hay is fed. The possibilities of alfalfa as a means of saving meal will be seen to be very great.

We have also fed green alfalfa to hogs and have obtained very encouraging reresults. Alfalfa is not suitable for constituting a large proportion of the ration of very young pigs, though a small amount may be fed to good advantage to pigs of any age. By the time pigs are three months old, they can be made to depend to a considerable extent upon alfalfa, and the meal ration can be reduced as they grow older.

In our work, the pigs were fed green alfalfa in their pens, and they ate only slightly more than a pound of green alfalfa each per day. Their meal ration consisted of a mixture of ground barley and wheat middlings. In this test, 4.3 pounds of green alfalfa proved equivalent to one pound of meal, which is a higher value pound for pound than that obtained for skim-milk. It must be remembered, however, that alfalfa cannot be made to substitute more than a limited amount of the meal ration of a hog, and consequently is not of the same relative importance as in the case of dairy cattle.

Our results with hogs were not equal to those obtained by the Kansas Experiment Station, where they have found in one case one hundred and seventy pounds of green alfalfa were equal in feeding value to one hundred pounds of corn. This result, however, may be regarded as an extremely favorable one, and indicates the possibility of materially reducing the bill for meal, even in the case of hog feeding, though, as stated before, it is suitable for substituting only a comparatively small amount of meal.

Alfalfa hay has also been successfully used in hog-feeding, but only with comparatively matured hogs. For hog-feeding, however, only the finest quality of hay is suitable, the second and third cuttings being best for this purpose. For wintering breeding sows cheaply, alfalfa hay may be made to play an important part either fed dry or put through a cutting box, steeped in water, and mixed with their meal ration.

As I stated in the beginning, it is impossible to give anything like a comprehensive survey of the experimental work in feeding alfalfa, but the examples given serve as illustrations of the high value of this important crop, and, so far as I know, wherever alfalfa has been used with judgment the results have been remarkably satisfactory.

Discussion.

R. S. Stevenson (Ancaster): The condition under which Prof. Day conducts experiments are all right, but it could not be done by farmers as accurately. We keep that institution to carry on experiments for us. The experiments the average farmer carries on are not of much value.

My experience of alfalfa extends over a good many years. I have been growing it for between twenty and twenty-five years. We always have some of it, more some years than others. Our soil is sandy loam with a gravel subsoil, and we can grow alfalfa very successfully, but not as well as they can on the heavy clay soil. I had the pleasure the summer before last, of going through the counties of Welland and Haldimand and part of Wentworth while on clover inspection work for the Dominion Government. I saw in these counties fields of alfalfa that would delight you. I never saw anything like it anywhere else, and these fields were on heavy clay soil. There are farms in these counties that a few years ago could have been bought for a song. They would grow hardly anything; but at the present time you could not buy them for one hundred dollars an acre, simply because the farmers have got into the growing of alfalfa. They are growing more seed there every year, because they find it profitable to do so. I met a man who had sold $1,000 worth of alfalfa seed in one season. The only experience I have had in feeding alfalfa has been feeding it to dairy cows. We have always found that when we started feeding alfalfa we had an increase in the milk flow. There was no guess work about it because we weighed our milk. We did not reduce the grain ration as Professor Day said they did in the College. There is no question that the increase was caused by feeding alfalfa. Even the best of clover hay does not give us as good results as the alfalfa. The dairyman can keep his cows up to a good flow of milk by feeding a good corn ensilage and alfalfa hay. What does that mean? You have to pay $26 a ton for bran, and alfalfa hay is practically as good as bran, and you can grow two tons to the acre. I have grown as high as five tons to the acre. It will not cost you over $5 a ton to grow the alfalfa which would be equivalent to two tons of bran. We are in this business for the purpose of making money, and we must look at the cost of production. Feeding a grain ration to cattle is expensive and anything we can do to reduce the cost will increase our profits.

I would not advise a farmer to grow ten or twenty acres of alfalfa the first year. It is better to take a small plot near the barnyard and experiment a little and see whether the land is suitable for it and then gradually increase your acreage. Many of the farmers are afraid to sow enough seed. You should never think of sowing less than twenty pounds to the acre. I was pleased to listen to the address of Prof. Zavitz this afternoon, because last winter was a very hard one on alfalfa. I am strongly of the opinion that the seed I got last year must have come from the southern states, and I would advise every farmer to procure home-grown seed, because I am satisfied that the reason my alfalfa was a poor crop this year was because my seed came from the other side. A field that had been in some years was not killed out to nearly the same extent. Alfalfa hay varies very much, and you must remember that the analysis that Prof. Day has been giving you was made from alfalfa that was saved in the very best condition. If you allow it to come out fully in blossom before you cut it, it will not be as high in protein as if cut at the proper time. It goes too much to woody fibre, and the cows will reject a great quantity of it. I cut the first crop just as soon as it shows a little purple. I do not want to see blossoms before I cut the first crop. The sooner you cut the first crop, the better chance it gives the second crop to grow, and the second crop is the most valuable, ton for ton of hay, and we get better weather in which to cure it. You require to exercise more care in curing alfalfa than in curing red clover. The less you handle the alfalfa the better. I think a revolving rake the best you can have.

Our plan has been to cut it as soon as the dew is off in the morning and let it lie that day and night, and then the next morning, as soon as the dew is off, we put in this revolving rake and try to get it into cocks, and we let it lay in these cocks two or three days and allow it to sweat out a bit. These cocks will become very solid and shed quite a lot of rain. Should you be caught with rainy weather, and if the cocks have to stand there a week there is danger of some of the alfalfa being smothered, and I have gone so far as to take a hand with me and a couple of forks and shove them over to one side. At that time of the year we have a great many thunderstorms, and it makes it difficult to cure the first crop. I do not think a tedder should be put into a crop of alfalfa. I have never fed it to horses, but I have fed it to sheep. Unless it is a nice sample the sheep will waste a great deal of it, but they will do very well on it.

Q.—Will alfalfa grow on alluvial soil with water three feet below the surface?

Prof. Zavitz: It is not likely to last a great while, the roots go down a great depth and it will not stand wet feet. I do not think it would last on such soil more than four or five years.

Q.—Do you ever use a hay loader with alfalfa?

A.—No, but I do not think there would be any objection if the alfalfa does not get too high.

Q.—Is there any difference in the color of the blossoms in this variegated alfalfa and the other kind?

A.—I have never grown anything except the purple or violet alfalfa.

Prof. Zavitz: The purple alfalfa has nearly all purple blossoms. In the variegated you will find some blossoms almost blue and occasionally you will find a yellow plant. Whenever you find yellow plants, it is a good indication that you have the variegated alfalfa; that is why it gets the name of variegated.

Q.—Do you think it advisable to cultivate low spots in the field and leave the rest in alfalfa?

A.—That might be all right; you would have to repeat that each time it killed out.

A Member: A friend of mine who had a field that was not very thick allowed the second crop to go to seed and cut it and disked it in and he had good results.

Prof. Zavitz: Top dressing is an advantage if you are careful not to allow any weed seeds to get in.

Q.—Is alfalfa as good to strengthen the land as red clover?

A.—Yes, I think fully so. My experience has been that where we have broken up alfalfa it has had as good an effect on the land as red clover. We never break it up until it becomes so thin that it is hardly profitable to leave it.

Q.—Would you not think it a mistake for a farmer to drop the red clover?

A.—Undoubtedly, alfalfa would never take the place of red clover. We are not here booming alfalfa at the expense of red clover, because it will not work into a short rotation, but there is nothing to prevent every farmer from having a field of alfalfa.

Q.—How long do you consider that alfalfa will stay on the land?

A.—In my case we have never had it more than ten years. I think the blue grass runs in on sandy soil and chokes it out, but Professor Zavitz has told us of some fields twenty and twenty-three years old.

Q.—Do you seed it with the grain crop or separately?

A.—I have done both, but I have had the best results by fall plowing the field and then in the spring, after the rush of spring seeding is over, we go over that field and work it up the same as if we were going to summer fallow it. We get the ground clean, and then we sow the alfalfa by itself about the second week in July without any nurse crop whatever. A great many people sow it with a light seeding of grain. I do not think I would sow it with oats, a light seeding of barley would be all right.

Q.—Would not it require some protection in winter?

A.—Some seed with fall wheat just the same as red clover and they have good results. A field that has been in roots the previous year and kept clean you can seed with alfalfa with a crop of barley. It is more important to have the field clean than to have it rich.

Q.—What is the matter with oats?

A.—The alfalfa would catch very well, but we all know that oats are a rather rank grower, and they are liable to smother out the alfalfa.

Q.—Do you sow in front or behind the drills?

A.—Either way.

Q.—Do you harrow it?

A.—I would rather roll it than harrow it; I never cut it the first summer unless it is full of weeds, and then I clip off the top. I absolutely agree with what has been said as to pasturing alfalfa. It is certainly fatal.

Prof. Day: In speaking of our work with dairy cows, the hay we were feeding was not like these samples I have here, but only a moderate sample of alfalfa; it is not what I would call first class alfalfa hay. Whatever you do, whether you grow alfalfa or not, do not go back on the good old standby, the red clover. It is a good thing to have a piece of alfalfa, but you must have the red clover working year after year to help keep your land in heart. If you get in too much alfalfa you might find yourself alfalfa poor, and have too big a crop to handle; but by having a moderate amount of alfalfa, followed by red clover and timothy, you spread out your haying season and can work to better advantage.

Q.—Is alfalfa being used for ensilage in this part of the country?

A.—Not to any extent that I know of.

Prof. Zavitz: The third crop of alfalfa could be mixed with corn and put in the silo. I know some of the farmers in Ontario who are doing that.

The Chairman: This year has been a very dry one, and the Exhibition authorities have gone away to Montana and have secured a man, who has given special attention to the semi-arid region of that state, to come here and talk about what he has done in investigating soil moisture. He is not a native of Montana; he is a native of Ontario, and was a graduate at the Ontario Agricultural College. He went from here to the Iowa Agricultural College, and from there to Montana, and he is now head of the agricultural work in Montana. He comes back to us knowing something of our conditions, having studied soil moisture in Montana. I have heard it said that there is no better man in the West than Prof. Alfred Atkinson. I am glad to welcome one of our boys back to Ontario, and I have pleasure in asking him to speak to us now.

WESTERN TILLAGE METHODS IN HUMID AGRICULTURE.

ALFRED ATKINSON, AGRONOMIST AT MONTANA STATE COLLEGE, BOZEMAN, MONTANA.

Within the temperate zone, agricultural land areas are commonly classified on the amount of the precipitation. Various divisions have been suggested, but the custom of considering localities as humid, with over 20 inches precipitation; as semi-arid with less than 20 and over 12; and as arid with less than 12, is now pretty generally followed. Previous to a rather recent period, semi-arid and arid areas were considered as of value for grazing purposes only. The sad experience of some pioneer western crop raisers, had seemed to prove that the country was too dry to make crop raising profitable.

During the past twenty years, the increase in population, the back to the land movement, and the human tendency to go west, have resulted in the settlement for farming purposes of much of the western grazing land. A certain percentage of the settlers have failed. A large number have met with a fair degree of success. A few have been highly successful. The returns on these successful farms indicate agricultural possibilities in the semi-arid west, and the methods which have led to these successes are of interest.

The semi-arid or dry farming west extends over a wide range of territory and includes a variety of conditions. The annual precipitation varies from 12 to 20 inches. The distribution of this, which is an important factor, is different in different localities. In some of the sections west of the Rocky Mountains, a large percentage of the moisture falls during the winter months. In other sections 60 per cent. of the precipitation comes during April, May, June and July. The distribution of moisture supply influences the cropping system and tillage methods.

The average annual precipitation in the Province of Ontario, ranges from 20 to 45 inches, with a general mean of approximately 30 inches. For the growing season the average is from 10 to 12 inches. During the summer of 1912, the amount of rainfall was below the normal, averaging about 7 inches for the growing months. This is slightly less than the average rainfall of the semi-arid western states for the same period. This suggets that the season of 1912 was dry as well as hot.

In comparing the precipitation records of Ontario, with those of the dry farming sections, we are impressed with the fact that under the dry farming system of tillage, crops are regularly raised on a water supply that would be considered as wholly insufficient in the humid sections. Many non-irrigated western communities are established and comfortably maintained when the average annual precipitation never exceeds 17 inches, and seldom gets above 16 inches. This fact is significant and suggests the possibility of so conducting the tillage operations that drought losses in the humid areas may be reduced.

For the dry land farmer, prompt and thorough spring tillage is of the highest importance. The moisture which the soil contains when spring opens up must be held if a paying crop is to mature. As soon as the soil is dry enough, all fall plowed land is given thorough surface tillage. To get over the fields quickly and stop the loss of moisture the land is harrowed. In case of rain a second harrowing is given.

Before planting, which is usually as early as a seed bed can properly be made, the land is double disked and in some cases rolled or packed. When packing is done harrowing follows immediately. The cultivation is designed to prevent unnecessary moisture loss by maintaining a surface mulch, and the seed bed is packed to bring the upper seed bed layer in close contact with the moist lower soil layers.

Throughout many grain sections of Ontario, the practice, all too common, is to leave fall plowed fields several days, or even several weeks, after the soil is in condition for cultivation before any tillage is given. During this time moisture is being rapidly lost. The soil which contained a high moisture content to a depth of 8 to 10 feet loses the moisture until only the upper 3 or 4 feet contain available water for growing plants. When the dry period comes, and the water necessary for growth is not supplied from above, it is not present to be supplied from below. The result is serious reduction in yield and drought losses are reported. Had the unnecessary loss in April been prevented, the equally unnecessary loss in July and August would not have been recorded.

A second feature of semi-arid soil cultivation which would bear more general imitation is the tillage immediately following the plow in spring plowing. The practice in many humid sections is to plow all of the field and then go back to "work it down." When moisture conservation is accepted as the governing essential, tillage is completed as the plowing proceeds. The land is harrowed, or in the case of sod, is disked as soon as the furrows are turned. This retains the moisture, prevents baking and sets aside the possibility of a condition where the land needs "working down."

In practice two methods are generally followed to give prompt cultivation after plowing. One of these is to attach a small rotary disk to the plow. This cultivates the two furrows last turned. Another plan is to hitch a horse to one section of a harrow and have this horse walk on the plowed land beside the plow team. When the plowing is finished a surface mulch has been established.

For the man who is raising live-stock one of the perplexing problems is the question of pasture supply. It is not difficult to arrange for sufficient pasture if there is enough rainfall. By providing green crops to be fed when pastures are short, it is not difficult to provide in case of a dry season. The uncertainty makes it a problem to know how to arrange any particular year.

Observations in irrigated regions lead to the conclusion that an irrigation system in the pasture field is the only absolutely satisfactory method of solving the pasture tillage problem. Water cannot be accumulated in the pasture to provide against a dry period. The only method is to accumulate in streams or in reservoirs and turn on the supply when rainfall becomes inadequate. In many sections water may be supplied from wells. In other cases reservoirs in narrow ravines, will make possible the holding of spring flood waters. Where creeks maintain a supply through the season it is frequently possible to convey water to the fields by means of gravity ditches.

Where dams have to be built and pumping plants provided the initial outlay may be considerable. However, to be able to maintain the pastures at their maximum carrying capacity makes for certainty in the organization and much higher average returns from the live stock. During the season of ample rainfall the irrigation plant costs nothing for operation. For the season of drought a full supply of grass is assured and losses from the reduced condition of the live stock are prevented.

HOW I OPERATE MY SEED CORN PLOT.

T. J. SHEPLEY, OUVRY, KENT CO.

When we started to operate a seed corn plot we had an ideal to which we wished to attain. The poet sings:—

> "Aim high.
> He aims too low, who aims beneath the sky."

Well, we had a lofty ideal. We wanted a corn that would be popular with the farmers of Eastern Ontario and Quebec who grow ensilage. We wanted that corn to be a heavy yielder of grain. And we also wanted a corn with which we could compete for the Klinch Trophy, the blue ribbon of the corn growers of the Canadian corn lands. For four successive years that trophy has been won by a selection of Reid's Yellow Dent, and so we chose Reid's Yellow for one plot, while the eloquent speech of Prof. Moore, of Wisconsin, at the late "Corn Show" held in Chatham, led us to select Wisconsin No. 7 for another plot.

Both samples were subjected to a germination test, and only those which showed a vigorous growth were retained for the seed plots. About one week before planting both samples were shelled and put in numbered sacks. The soil is a black clay. The location is on the banks of Lake Erie, in East Tilbury Township, Kent County. The land selected for the Reid's Yellow was an old sod pastured for at least ten years by hogs and cattle. In the latter part of March it was tiled into the lake with four inch tile placed in drains forty-five feet apart. During the winter of 1911 it was covered with barn yard manure at the rate of at least twenty-five loads per acre. It was plowed the first week in April, rolled down and the disc harrow run over it. Then with the roller, disc harrow and drag we got a very good seed bed. On the first day of May, we started to plant, finishing on the second. In planting we used part of an old corn planter cable so the hills in the row were three feet eight inches apart, and the rows were three feet six. We stretched the cable for every row. It takes a man about three hours to plant a thousand hills if he has a boy to drop for him. We have always planted our corn plots with a hoe so we get exactly five kernels in a hill. The size of the plots were twenty rows wide by fifty hills long. The corn was through the ground eleven days after planting and in sixteen days it was cultivated lengthwise, crosswise and lengthwise again. Then it was hoed. When about five inches high it was thinned to three stalks in a hill.

Throughout the season it was hoed some five or six times, and until it was out in tassel it was cultivated every week with one exception, and it was cultivated twice the week following that exception. After the ears were set we cultivated it once and then the weeds were kept down with a hoe. The weeds that bothered most were a couple of patches of horse radish, and the burdocks bothered a great deal until Mr. Raynor was on the farm scoring some seed plots of grain. He showed us how to kill those fellows, and after that we had no further trouble with them. As soon as the ears commenced to show all barren and unworthy stalks were detasseled.

We were not bothered with any pests to any extent except perhaps I might mention a dozen very industrious brown Leghorn hens; they scratched it out some, causing us to replant. But they also destroyed all cut-worms, so we did not fare too badly.

On the fifth day of September we selected what we considered the five best rows and gathered some fifty or sixty ears, from which we will select twenty ears for next years seed plots. These ears were all taken to the house and stood on nails driven through a board, and were thoroughly dried. We just take a board, mark it off in three inch squares, drive a nail through the corners of the squares, set the board up on brackets, and the rack is ready for the corn.

On the twentieth day of September we cut it, making two shocks of each row, each shock containing twenty-five hills. In about ten days it was husked and weighed, each row by itself, put in the wagon and drawn into the barn where we tied it up in strings of twenty ears in a string and hung it up on poles fastened up near the roof of the barn away from the rats and mice. An outstanding feature of this plot was the rank, luxuriant growth that it made of ears, stalk and foliage, Mr. Raynor when he scored it called it "a wilderness of corn."

The soil for the plot of the Wisconsin No. 7 was very similar to this one, but it had corn on it in 1910. It was not tiled, was not manured, was not cultivated nearly so often, though no weeds were allowed to grow on it. It was planted on the eleventh day of May, and was cut on the sixth of September and was fully ripe. An outstanding feature of this plot was the great show of ears that it made, as they all hung about the same height from the ground, about three and a half feet. The results from these two plots were so good as to be almost startling yet—

> **"What we have felt and seen,**
> **With confidence, we tell."**

When corn is planted three and a half feet each way and the rows made 50 hills long it just takes about seventy of these rows to make an acre, so the number of pounds in each row is the number of bushels of shelled corn that row yielded per acre. The plot of Reid's Yellow yielded 2,633 lbs. This we figured to be about 125 bushels of shelled corn per acre. The poorest row yielded 95 lbs. of ears and the best one 154 lbs. The average per row was 131 13-20 lbs.

The "American Land Syndicate" that is operating in farm lands in Essex and Kent gave me $50 for this corn, and we sold the fodder for $4. So the plot brought us in $54.

The "Wisconsin No. 7" plot was the same size, and yielded 2,351 lbs. of corn. The poorest row yielded 83 lbs., the best row 149 lbs., the average per row being 117 11-20 lbs.

We have learned some things by experience in our work with corn plots. Once we get a good stand, very much depends on cultivation. A "Torres Vedras Policy" is no policy for a corn plot. Masterly inactivity has no place here. We had a very dry season, and yet we doubt if our plot of Reid's Yellow suffered very much from the drouth. The dust mulch produced by frequent cultivation seemed to force the corn along. At any rate it grew very luxuriantly. The Ontario Corn Growers' Association give a prize for the best hill of three stalks. During the summer we thought we'd try an experiment and perhaps compete for that prize. We selected three hills that had made a very rank growth. These were mulched with some very rich manure. Then we watered them for a couple of weeks but they never gained on the rest of the plot. In the fall when we harvested it, they were no better. We were on a farm in a neighboring township this summer and were looking at a field of corn. The owner was not satisfied with it and speaking to his hired man he said, "It was not cultivated enough. 'Twas only cultivated three times and it should have been cultivated five times." We believe that man was on the right track. We are told that in South Essex there are tobacco and tomato farmers who cultivate their land every day.

Another thing we learned. When we go into our seed plots to select the ears for next year's plot we are told in the regulations to select the five best rows. Now when the rows are all pretty good inexperienced men like us might make a mistake in our selection. We might just miss the best row in the plot. Next year when we go to select the ears for our seed plot for 1913 we propose to take ten short boards with two rows of nails on each board, ten nails in each row. We will select ten ears from row No. 1 and ten ears from row No. 2, and stand them up on board No. 1, etc., selecting ten ears from every row, then when we husk and weigh the corn we can put our hands on the best seed ears from the five very best rows in the plot. The operation of these two seed plots for corn has made me more than ever an enthusiastic believer in the C. S. G. A.

Some one has said that "Hope is the railroad ticket to success." If that is so then we think we may say we have got our ticket. We want the corn we grow to have for its ancestors the ears produced by those rows which yielded 140 lbs. or better per row. This would mean, if the hills were three and a half feet apart both ways, 140 hushels of shelled corn per acre.

Wouldn't *that* be worth while?

Wouldn't that be worth striving for?

Q.—How do you get rid of these burdocks?

A.—I took the spade and cut them off just below the ground and that killed them.

Q.—How deep did you cultivate the corn?

A.—I believe it would have been better to have cultivated it a little deeper this year as the season was a little dry.

Q.—How many inches do you think it is wise to cultivate?

A.—About two inches.

Q.—The Wisconsin was earlier than the others?

A.—Yes, much earlier.

SOME OBSERVATIONS AS A JUDGE IN COMPETITION OF STANDING FIELDS OF SEED CORN.

J. H. COATSWORTH, RUTHVEN.

During the past two years it has been my privilege to visit quite a number of farms in the corn districts of Ontario in the capacity of Judge in the Standing Crop Competitions, and consequently I have been asked to make some remarks to-night on my observations in connection with this work.

Since the growing of corn for silage has become an established part of the agriculture of Eastern Canada, and there is an increasing demand for Canadian grown seed corn, it should be the aim of every corn-grower in those sections where the crop can be thoroughly matured, to improve his methods of producing and caring for the crop in order that he may be in a position to do something towards supplying this demand.

With a little judicious care in selection of varieties, in the growing and harvesting of the crop, and particularly in the care of the grain after it is harvested, just as good a class of seed corn can be produced in South Western Ontario as can be produced across the line in the United States.

In visiting the farms in the corn belt, it is gratifying to note the increasing interest in the growing of seed corn. The method of planting generally followed is all that can be desired, with the exception that in the majority of fields too many stalks are left in the hills for the production of the best class of seed corn. Four or five plants are frequently left in hills 3½ feet apart each way, while in no case should the number exceed three. Occasionally a field is planted in drills but it is not often that this method is followed.

When corn is planted 3 feet 8 inches apart each way, there is something over 3,200 hills on each acre, and supposing we have only two plants in each hill we have 6,400 plants which should produce 6,400 good ears. Fifty-five or sixty good ears of corn fill a bushel measure. Thus it can easily be seen that two plants in each hill produce at the rate of more than 100 bushels per acre and three plants in each hill produce more than 150 bushels per acre, which yield is frequently reached on good soil under favorable conditions. But when the number of plants in each hill exceeds three, the quality of the grain suffers. Nubbins are produced instead of well developed ears and the yield is decreased.

Many farmers are making a mistake in trying to grow varieties that are entirely too late for our climate. These late, large varieties promise a heavier yield of both grain and fodder than the earlier varieties do, besides they are more attractive in appearance and consequently more in favor for exhibition purposes, as they usually produce large well formed symmetrical ears with very deep kernels. But, with our short season there is too much uncertainty in growing these varieties as too often they do not mature in time to be harvested before frost. Also, the fact that the ears are large in circumference if often objectionable as there is much greater difficulty in drying these large ears than there is in drying medium sized ones. It is safer to select those varieties that will mature under favorable conditions in from ninety to one hundred days, such as "Bailey" or "White Cap" for Essex and Kent Counties, while for other parts of Ontario probably some of the flint varieties are preferable. These are reasonably safe and may be depended on to yield a good crop of hard seed corn almost every year.

It is the almost unanimous testimony of those who grow corn for silage that it is more profitable to plant the early maturing varieties which, although they do not produce as many tons per acre, do produce a larger percentage of mature ears, which make a better quality of silage than the late varieties which are likely to be immature when harvested, resulting in a poor quality of silage.

Another undesirable feature in the production of seed corn is that is readily observed in almost every part of the corn belt, is the mixing of varieties. It is claimed that the pollen of the corn plant may easily be carried by wind a distance of one quarter of a mile and that no variety can be considered safe from cross-fertilization unless removed at least that distance from other varieties. Yet with the small farms of Western Ontario it is difficult to find a tract of land one-quarter mile square on which there are not two or more varieties of corn. This results in a great deal of mixing. Yellow varieties are mixed with white and white varieties are mixed with yellow. Some very badly mixed, some very little, but fields that are perfectly pure are rare. This is a difficulty in the growing of high class seed corn that is hard to overcome, as all farmers in any locality are not likely to agree to grow one variety only, and thereby build up a reputation in that locality for that variety of seed corn. The only remedy that suggests itself is that each grower keep his seed plot as isolated as possible and exercise the greatest care in the selection of seed for his seed plot, discarding every ear that shows the slightest indication of impurity and conforming strictly to the type of the variety he is growing.

It is also noticeable that the quarters in which seed corn is stored through the winter are not of the class that might be expected to bring it through in the best seed condition. While the growing of corn for feeding purposes has been followed in Ontario for many years, the seed corn industry is comparatively new, and provision has not been made for giving considerable quantities the special care that each farmer gives the few bushels that he lays away for his own planting. Therefore the vitality of our seed corn is not as good in spring as it might be. Corn at husking time contains a large percentage of moisture and unless this moisture is expelled before hard freezing weather it is seriously injured if not ruined for seed, hence the necessity of getting seed corn husked early and storing it in narrow airy cribs where it will dry out quickly. It is false economy to purchase cheap seed corn.

Q.—How are you going to avoid getting seed mixed where the lots are only 60 rods wide and the neighbors on both sides grow corn?

A.—That is a question I cannot answer. It is very difficult to keep it pure at that distance.

Q.—What corn is best suited for ensilage purposes if planted 100 miles north of Toronto?

PROF. ZAVITZ: You can get corn adapted to almost any locality. I sent some seed corn up to Newfoundland two years ago and it matured. Up in your section it seems to me that a corn like North Dakota or King Philip would do very well and Red Glazed is very good corn.

MR. RAYNOR: Did you notice very much difference in the quantity of smut in corn grown on different kinds of soil, and to what extent did it exist?

A.—I did not notice any difference on account of the soil. Some seasons smut is worse than others. It was not bad this year. I do not know whether a wet season would encourage smut or not.

Q.—Would you advocate planting ensilage corn in hills?

A.—You will get more mature ears if planted in hills, and more fodder when planted in drills.

PROF. ZAVITZ: In Experimental Union work it was demonstrated that the corn planted in hills and drills, using exactly the same amount of seed in each case, we obtained a greater yield of ears in the hills and a greater total yield of corn and fodder with the drills.

THE CHAIRMAN: Our next paper is by Mr. William Naismith. Mr. Naismith is not here but he has sent his paper. He is a noted potato grower, and has taken a great many prizes. I will ask Mr. Newman to kindly read his paper.

THE COMMERCIAL HANDLING AND STORING OF SEED POTATOES.

WM. NAISMITH, FALKENBURG.

I begin this short article by making reference to the soil on which I grow potatoes. I am convinced that the kindly soil of Muskoka has largely contributed to my success as a grower of seed potatoes. My farm is slightly rolling, with natural drainage, exposed to south and east, and sheltered from north-west by granite ridge; the soil, being a rich warm sandy loam, quickly responds to good culture, and being underlaid by a compact subsoil, commonly called hardpan, it retains moisture, even in the dryest seasons, such as 1911.

As potatoes require abundant humus in the soil, I prefer to grow in rotation following peas, which has been sod the previous season, as legumes are credited with drawing lightly on the manurial constituents of the soil, and the vines acting as a mulch tends to smother weed growth and leaves a clean mellow seed bed for the following crop. I also grow on sod land, breaking pasture land the first week in August, disking and harrowing at once to hasten decomposition of the sod and prevent grass from growing, and repeating as often as required until snowfall. When sleighing comes and before snow gets deep, I haul and spread twenty loads of barnyard manure to the acre. In spring early in May, as soon as the land is dry, I run a disk over. Then plow manure under and harrow to level surface. Then with common single plow with marker attached, I begin on one side of the field, throwing out planting furrows, right and left alternately, four inches deep, planting by hand, distance apart depending upon habit of variety, and covering by a simple device drawn by one horse resembling a snow plow, which covers two rows at a time and does the work satisfactorily. I run short toothed steel harrow lengthways of the rows, three times at intervals, finishing just as plants appear above ground. I then run cultivator, getting close up to plants, thus making as little hand hoeing as possible; but no implement yet invented can take its place, and I use it every year so as to insure clean culture.

I cultivate four times, hilling only slightly by running cultivator deep and narrow, thus making the ridges incline towards the plants, which ensures them getting the full benefit of the rainfall. I generally finish cultivating about July 10th, just as plants are beginning to blossom. I never allow beetles to make havoc with the leaves, as potatoes never recover a check at this stage of their growth. I use land plaster and paris green—thirty pounds of plaster to one pound of paris green, applied dry when vines are damp with dew; two applications are generally sufficient, but should a third application be required I think it time well spent. This is the time to reduce the pest, as it saves worry the next spring

When tubers are thoroughly ripe, about October 15th, in bright sunshiny weather, I run the digger, taking every second row, leaving a short time on ground so that tubers are dry. I sort out small potatoes and bag up seed and remove to pit. I use a sand bank with slight incline to South, and ideal place, being always dry. Dimensions of pit, four feet wide, three feet deep, with sufficient length to hold 100 bags, leaving six inches on top for ventilation. I use strong coarse pieces of wood every six feet, a covering of poles lengthways of the pit overlaid with six inches of marsh hay, and covering with a foot of sand, leaving a space for ventilation at each end up to November 15th, when all is made secure for the winter. All the material used is found close at hand and costs only the labour. I have followed this method of storing for twenty-five years, and never have had any loss. Potatoes come out dry, no sprouting, and always ensure a full stand of vigorous plants. I stored and sold in the spring of 1911, seven hundred bags. I always find a good market and good prices. Average yield 220 bags per acre, and the land is left in fine condition for the succeeding crop, after which if seeded down in regular rotation several crops of excellent hay.

When tubers are ripe, and just before harvesting crop, I select the best plants by going up one row and down the next, selecting for producing proclivities, and uniformity in shape and size. Long experience and close observation make this an easy matter, even when the stalks are dead, for they still retain their natural form, and there is a best in every row, just as sure as there is a best in every flock and herd. I believe in planting the best and trying to improve upon it. I plant this selected seed next season on fresh cleared and burned brush land. I again use the seed taken from the new land to plant the main crop the following spring. I have followed this rotation for many years, growing from the top seed or ball. I have carried on experiments for over twenty years and have succeeded in getting three good varieties, namely, Rose of the North, Canadian Standard, and a new Empire State not yet sent out, but which may appear in 1912.

JUDGING POTATOES AT EXHIBITIONS.

The first consideration: Ability to produce bushels to the acre, coupled with quality and even surface. Too many points should not be given for appearance, so many of this class are poor producers, and will not repay the farmer for his care. I refer to what are known as fancy varieties. A judge to be able to do his work intelligently must have a practical knowledge of the varieties at present in cultivation, and their adaptability to different latitudes, as some of the most popular varieties grown in the Niagara Peninsula do not adapt themselves to Nipissing or Algoma districts.

Growing seed of early varieties of potatoes to get the best returns, plant June 1st, so as to avoid any check, as early varieties require to grow rapidly. This gives June, July and August to mature. Better returns are got than when planted earlier.

DISCUSSION.

ALFRED HUTCHINSON, MOUNT FOREST: I have listened to this paper with considerable interest. Since I have been operating under the Seed Growers' Association, I have come to the conclusion that the proper storing of our seed potatoes is very important. It is a subject that interests us all, even if we are not storing for commercial purposes. Every farmer should be particular as to the way in which he stores his seed potatoes. I believe we often injure the vitality of our seed potatoes through the methods we follow in storing and handling our seed.

I would like to prove the truth of the position I take because you may have attributed the bad quality of the seed to other causes. Probably many of you have blamed the bad quality of the seed to the method you followed in planting. You put them in too deep or the season was too dry, and you may have attributed the fault to anything, but the real cause which I believe in ninety-nine cases out of one hundred is the method which is followed in the storing of the potatoes.

Two or three years ago, through circumstances beyond my control, I found myself at the beginning of potato planting time with a piece of tough sod not yet worked in any way. I had no other land on which to put my potatoes. I concluded the only way to do was to put the manure on the surface and plow the potatoes right under the sod, because if I plowed the ground first and waited to fix it up, I would not have time. I plowed the potatoes under every third furrow, and very often they were plowed under rather too deep. I allowed one of my neighbors to plant about two rows of his own seed among mine. I had a few bags of selected seed, and I planted them at the end. These potatoes were very slow in coming up, and some never came up at all; but the two rows that my neighbor planted came up almost without a miss. Two-thirds of my potatoes never came through the ground at all, but the seed that I had selected came up with scarcely a miss. I thought it was the greater vitality of the selected seed, but observations that I have made since have led me to the conclusion that it was the method followed in the storing of that seed that caused them to get through that thick, tough sod. This seed had been kept in the cellar in bags, and the other seed had been stored in bins in larger quantities, and had been left too long in the cellar. That was my first experience.

I noticed the same thing this past season. In the first two acres of potatoes I planted this year, the seed had been kept in the cellar in a large bulk, and they did not grow as well as where they were kept in smaller quantities. It is not well to keep seed potatoes in large bulk. The seed that was kept in small quantities grew all right. It does not matter where they are kept, so long as they are kept in small packages.

There was no difficulty in the growing of the pitted seed. I think pitting is probably the best way of storing potatoes, because it is the only way in which we can entirely prevent sprouting. I think it would be a good thing if the Experimental Farm took that matter up, and carried on some experiments on the different methods of treating seed potatoes.

Q.—Is it wise to leave the seed in the pit until time to plant?

A.—I think it is. I do not know of any better place in which you can keep seed, than in the pit.

Q.—Do not you think the reason the pototoes do not grow so well is because they sprout before they are planted?

A.—Yes, and the only way to prevent them from sprouting is to store them in a proper manner.

Q.—Do not you think planting the seed in dry soil has some effect?

A.—Yes, it certainly has, but the seed that was stored in the pit grew without a single miss.

Prof. Zavitz: We have potatoes stored in different ways this year right along the line suggested, and we will be able to make a report on the best method.

OUTLOOK OF THE PRODUCTION OF RED CLOVER AND ALSIKE SEED IN ONTARIO.

Dr. M. O. Malte, Ottawa.

Although red clover and alsike are grown to a considerable extent in Ontario, yet one can scarcely say that the production of the seed of these two kinds of clover is yet executed in the most rational manner. Only a comparatively small number of farmers grow red clover and alsike with the specific purpose of producing seed. As Mr. T. G. Raynor, Dominion Seed Inspector of the Department of Agriculture, Ottawa, has expressed it: "The majority who produce seed from time to time look upon the clover seed crop as a sort of present that comes to them should the season prove favorable to the formation of seed." There is, however, no doubt that the subordinate profit from clover seed could be turned over into a fixed income, if clover were grown more rationally for seed than is now the case.

At the MacDonald College Farm, where clover seed has been produced during a number of years, it has been proved to be a money-maker of high standing. This year, for instance, the return from 9 acres is 1,270 pounds of seed, and from another field of 15 acres, 1,506 pounds. This makes a total of 2,776 pounds in 24 acres, or about 115 pounds of red clover seed to the acre as an average. Clover seed selling at 20 cents per pound, the average return from clover seed is about $23.00 per acre. And, in addition to this, the value of the first cutting of hay is considerable. I take the liberty to quote the following figures from the Journal of Agriculture and Horticulture, Quebec, Vol. 15, No. 6, showing the return from 65 acres of red clover at the MacDonald College Farm:

203½ tons of hay at $10.00 per ton	$2,035 00
23 tons 720 pounds of second cutting on 24 acres allowed to grow for seed. Hay after threshing at $5.00	116 80
2,776 lbs. clover seed from 24 acres, 20c. per lb	555 20
Net returns	$2,707 00

These figures do not need any further explanation. They simply show that there is considerable money in making the growing of clover seed a real business.

For the successful growing of clover, be it for seed or for hay, some rather important things must be taken into consideration.

I shall not, in this paper, deal with such things as belong to practical farming, that is, the quality of soil, its proper cultivation, etc. I shall only touch upon one of those things in passing.

The clovers have, as you know, suffered severely this year in some countries from unfavorable conditions in early spring. When I visited, early in May, Prince Edward County, I had an opportunity of making some observations on the damage done. It was very interesting, indeed, because the way in which the clover fields had suffered indicated the way to prevent similar damage in future. Red clover, as well as alfalfa, was to a great extent killed, either during the winter or in early spring. When I say that it was killed to a great extent, I do not mean that some fields were killed, others not. Practically every field had some patches in which the clover plants were either entirely killed or badly damaged. This fact that the clover was injured in patches seems to indicate that the reason for the damage done has nothing to do with the quality of the clover itself. The reason must be sought elsewhere. Now, it was interesting to observe that the injured patches were always situated in some small depressions of the field, that is, where water had accummulated and remained stagnant. And I think that this is the explanation of the matter. Red clover does not like too much water in the ground; it grows best on upland soil. If the field in which clover is grown is low lying, and if the superfluous water is not in some way given an opportunity to leak out, it will certainly weaken the clover plants considerably. Supposing that other unfavorable conditions, such as alternate frost and thaw set in, what will be the result Simply that the clover plants, already weakened, will be killed to a greater or smaller extent. The way to avoid this partial killing of the clover will be to drain the fields properly where they are not naturally drained, and the cost of draining, which perhaps in some parts of Ontario might seem rather expensive, will in a very short time be more than equalled, not only by an increase of the returns from the clover field, but also from wheat and other farm crops.

This year has also been a very exceptional one during the summer months, and the season has been very unfavorable for the securing of clover seed. It is thus estimated that the amount of seed produced this year is about ¼-⅖ of the average production. This means that there should be a considerable import next year to fill the regular demand for seed.

It must be pointed out that there is always a danger in introducing seed of foreign origin; I shall not speak in this connection of the possibilities of introducing foreign weeds through the medium of clover seed. There are enough of those already in Canada. There is another risk in the import of foreign seed, because of the fact that countries from where the supply of clover seed after a year like this very likely should be taken, have a climate very different to that of Canada. Take, for instance, the Chilian red clover or the English red clover; what would be the effect on the red clover crop the next two years if Chilian and English red clover seed were imported to any extent? There have been made several experiments to find out how Chilian clover, or, generally speaking, clover from a southern climate, would behave in northern countries, and they all point in the very same direction, namely, that the return from the southern seed will be very poor. It might, perhaps, interest you to know that Chilian clover invariably and English clover very often is killed by the winter in Southern Sweden, although the winter there by no means can be compared with the winter in most of the clover producing parts of Ontario. It is much milder. But we do not need to go over to Europe to find out how Chilian and English red clover should stand the Canadian winter. There was a considerable import of Chilian red clover seed in the Province of Quebec in the year 1908, and I have been assured by Mr. J. Côté, Dominion Seed Inspector of Ottawa, that the clover crop the year after the import of Chilian seed was a very poor one. The reason for this was that the Chilian clover, no matter how it germinated, was quite unable to withstand the Quebec winter. It was killed by frost to a very great extent. And, on meeting with farmers, when the clover question was talked over, there were heard expressions like this: "What is the use of buying and sowing clover, as we do not get any returns for it?"

What I want to get at is this: If we desire a steady production of clover in Canada we must seek to produce the seed in Canada, and thus be independent of importation from other countries.

You might now ask: How would that be possible in a year like this? Is it possible to improve our home-grown clover in such a way as to safeguard a fairly good crop even in such an unfavorable season as the last one? To declare, without any restriction, that such an improvement is possible, would be to admit that the weather conditions are of only secondary importance for the outcome of the clover crop. But this is, of course, not my meaning. What I sincerely believe is this. There exist in Canada very good possibilities of making the clover crop partly independent of outer conditions, especially of the injuries affected by frost. In other words, I think it is possible to improve the average quality of the red clover in such a way that it might suffer less from exceptionally unfavourable conditions than it does at present.

Let me explain how I think it possible to obtain such a superior clover. Supposing that we have grown this year red clover or alsike for seed and that 75 per cent. of the plants in our clover field were killed by frost. Would it pay to keep the remaining 25 per cent. for seed? I think it would. It would not pay this year, that is true, but it would pay next year and the following years much more than if we plow the field up and secure a new supply of clover seed from somewhere else.

If we think it over, what it really means, that 25 per cent. of the plants in our supposed clover field survive we must necessarily come to the conclusion that they survive because they are the stronger ones and because they are able to withstand severe outer conditions. But is that not what we want to have? A stronger clover which can come through the winter without being killed, and which, generally speaking, can develop in spite of unfavourable climatic conditions. How would it be to save the seed from this 25 per cent. of the cloverfield, that we have supposed, to start from? I think the result would be surprisingly good. For if we save this seed, we might expect to get a progeny of the same superior quality as the plants from which the seed was taken, at any rate better than that 75 per cent. of the plants which were killed, just as we expect to get better offspring from a strong and sound bull than from a weak and sickly one. If we save the seed from plants surviving in spite of outer unfavourable conditions, we simply follow the same principles of selection as have been practised to so great an advantage by the Canadian Seed Growers' Association. The only essential difference is this, that while the selection of superior types of cereals by members of the C. S. G. A. is performed by skilful and trained men, the selection of superior types of clover is performed by Nature herself.

This might, perhaps, seem like a strange tale to some of you, and you might ask if it is really possible to get any practical results from such a selection, if it, for instance, is possible to get a fully winterhardy clover by using seed from only such plants which come through the winter without any damage at all. Yes, it is really possible, and we have the actual proof of it here in Canada. Mr. T. G. Raynor has kindly informed me that Mr. McDonald, at Cape Breton, N.S., has followed this method of taking seed from surviving plants during a number of years, and that the result is that he has now a strain of red clover which is perfectly hardy, which stands any of the winter hardships without any injury, and which shows a remarkable tendency to be perennial.

Any farmer can obtain similar results simply by taking his supply of seed from his own farm from year to year. To grow clover for seed rationally does thus not only mean, as I have tried to show from the figures taken from the report from the MacDonald College Farm this year, that there is a lot of direct money in the growing of clover seed. It also means that the farmer when growing his own seed improves at the very same time his own clover crop, without any extra expenses at all.

I think, therefore, that the encouragement of the growing of clover for seed in Ontario is one of the best means to improve the average quality and increase the average value of the hay crop of the Province.

There is one thing which I think should prove to be of great benefit for the successful and profitable growing of clover seed, and which would be of the utmost importance to the Province as a whole. I think of so-called clover growing associations. To the activity of such associations is contributed, to a considerable extent, the high standing of the growing of seed of forage plants as well as of other farm crops in Denmark. I shall in a few words sketch the origin, the organization, and the value of such associations.

It is by no means enough to produce seed. If the production of seed shall pay, the seed must be of good quality and as free from weeds as possible. The proper cleaning of the seed is, however, a thing that cannot be afforded by the average farmer. The necessary implements are too expensive, but they are, on the other hand, necessary to make the production of the seed really profitable. The realizing of this leads to the formation of co-operative associations in Denmark.

The seed-growing associations, of which there exist many in Denmark as well as in Sweden, are as a rule based on the principles of equal shares. Their aim is to work for the promotion of seed production by controlling the amount produced by members and by seeking to find as good a market as possible for the seed.

The organization of such a seed-growing association is briefly this:

Seed growers from a special district join into an association, the members of which are responsible for its economy either jointly or separately in proportion to the value of seed delivered by each member. The affairs of the association are handled by a board of directors who has not only to attend to the business of the association, but also to see that the seed growers are strictly following the special rules of the association regarding the growing of seed, etc. The board of directors has also to give information to the members on the best way of growing the seed; it decides which varieties should be grown by each member. Of course, if any member wants to grow a special variety the board of directors, if possible, comply with this special wish. The seed is delivered to the members by the board of directors. Generally speaking, such an association is based upon the same principles as the Canadian Seed Growers' Association as far as its field work is concerned. The business part of it is a little different.

The members must deliver all their seed, except what they want for their own use, to the store-house of the association not later than the first of December of each year. There it will be cleaned by means of special machines, bought by the board of directors. When the seed has been cleaned and analyzed, each member will be paid according to the weight and quality of the cleaned seed. It must be mentioned that the members must, when delivering their seed, give a certificate as to the name of the variety. Early next spring the association pays to each member a certain amount, generally 2-3 of the estimated value of the seed delivered. Of course, if the finances of the association allow it, there is nothing to hinder the board of directors paying in advance, especially if the prospects for a profitable sale of the seed are favourable. The final settling of the accounts takes place next fall, when the members obtain all the profits from the sale of the seed, with the exception of what has been spent for the running of the business.

It must be mentioned especially that the rules of the associations stipulate that the seed should be sold, if possible, without any middleman, to the farmers directly.

Such are the outlines of the seed-growing associations working in Scandinavia, and it must be said that, although they are comparatively young, they have done a great deal of good for improving the quality and increasing the value of many kinds of farm crops. I think that the formation of such associations should be of very great importance, especially for the clover-producing parts of Ontario, for such farmers who are especially interested in seed growing as well as for those who prefer growing clover for hay. Clover seed growing associations should not only work to the benefit of the seed growers by giving them the highest profits from their seed; they should also work for the benefit of those farmers who need to buy their seed, making available to them the very best quality of seed at the cheapest price

And if I recommend that form of co-operation outlined above among farmers, it is because I sincerely believe that the formation of clover seed growing associations would be a powerful agent for the proper development of the clover growing possibilities of the Province of Ontario.

Q.—Can you tell me, does the clover seed produced in Sweden depend on the honey bee for fertilizing the flowers?

A.—You want to know to what extent clover is fertilized by the honey bee. There are a few records on that question, but I think red clover is, to a very great extent, fertilized by the ordinary bee, although these bees are not able to reach the honey at the bottom of the flower.

A Member: The honey bee works on alsike, but I did not know they worked on red clover.

A Member: I think if you watch them closely you will find that the honey bee works every year on the second crop of clover. The past year we had a very heavy crop of clover honey. The hives were filled up with the dark honey—not buckwheat, but red clover honey.

Q.—Which crop of alfalfa would you prefer to save for seed?

A.—Usually the second crop is used for seed in Ontario, the first crop for hay and the second crop for seed.

Prof. Zavitz: Some years we get a larger crop of seed in the first crop, but, generally speaking, I think it is wise to convert the first crop into hay because you get from two to two and a half tons per acre, and the second crop comes in very nicely for seed. That is the general practice.

THE COMMERCIAL HANDLING OF REGISTERED SEED, BY THE CANADIAN SEED GROWERS' ASSOCIATION, AND THE MEASURES TAKEN TO MAINTAIN AND SAFEGUARD THE HIGH STANDARD WHICH IT HAS SET.

L. H. Newman, B.S.A., Sec'y, Canadian Seed Growers' Association, Ottawa.

The work of the Canadian Seed Growers' Association may be divided into two main categories, namely,—

(1) The production and perpetuation of what is now known as "*Elite Stock Seed*" and;

(2) The multiplication and distribution of this seed throughout the different channels of commerce.

By "Elite Stock Seed" is meant either,—

(a) the general product of a special seed plot originating from seed which has been hand-selected for at least three years or;

(b) a pure stock of seed originating from a single plant, the progeny of which has proven in reliable field or plot tests (and by analysis if necessary) to be worthy of distribution.

Up to the present time almost all stock seed, considered by this Association, has been grown by members who have followed a certain prescribed system of selection especially designed for the use of practical men. As time passes we expect to be able to obtain more seed of this class from our experimental stations. When stock seed of a desirable quality has once been obtained, the main concern is to maintain its purity and quality. This is done by means of a special so-called hand-selected seed plot which each member is required to operate annually. This plot is situated on land in a high state of cultivation and as free as possible from noxious weeds. Either before or after harvest selections of typical heads or pannicles are made from this plot in sufficient quantity to get enough seed to sow a similar plot the following year. As a rule a plot of $\frac{1}{4}$ acre is large enough for the purpose. After the selection is made, the remainder of the crop on this plot is threshed and cleaned, and the seed reserved for sowing the multiplying field or fields the following year. It is the product of these fields that is offered for sale for seeding purposes.

The care that is exercised by this Association in seeking to maintain and safeguard the high standards set for this seed, so as to be able to assure the buyer as to the genuineness and purity of the goods offered, is a matter which should be understood by all who buy seed or who have anything to do with seed. The great importance of using seed which is pure as to variety free from weed seeds, of high vital energy and which is large, plump and possessed of that high quality of life which makes possible the product of high yields, other things being equal, is a matter which, of course, should be appreciated by everyone.

In the prosecution of its work, the Association attaches great importance to the rigid field inspection conducted by its experts. Where a member expects to offer a quantity of seed for sale, the field record, showing the purity and general performance of the sort, is regarded as invaluable. If other varieties or strains are reported as being found in a growing crop to any considerable extent, the Association will not accept the resulting crop for registration as registered seed, and will issue no certificates of registration giving the said seed public recognition. If on the other hand the field inspection is satisfactory, the recognition given the seed will depend upon the cleaning and grading. This, of course, is a purely mechanical process and can usually be effected to the satisfaction of the Association.

The course followed by the Association in handling seed intended for registration and which has been offered for sale is briefly as follows:

In early autumn a circular is sent to each member asking him to send a sample of his seed as taken from the mill. This gives the Executive an opportunity of knowing the kinds of seeds or other impurities which must be dealt with and regarding which care must be exercised. It also enables them to advise the grower as to whether or not his sample as such is suitable for seeding purposes. If we find that a sample is creditable and capable of being cleaned and graded, so as to produce a good quality of seed, the grower is advised accordingly and asked to submit a one pound sample later, which represents exactly what he is offering for sale. An official analysis for purity and vitality is then made at the Dominion Seed Laboratory, Ottawa, and if this test be satisfactory, the sample is filed and kept for six months as evidence in case of dispute. Each member is also asked to give a statement as soon as possible, giving the approximate quantity he expects to have for sale and the price he is asking. A Seed Catalogue is then issued early in the season and distributed widely. Prospective buyers are urged to communicate direct with the growers, although if they prefer they may take up the matter of seed purchase at the headquarters of the Association direct. The growers advise the Secretary of the Association promptly as they receive orders, so that he may know the exact position of each grower from day to day, or from week to week. In the meantime each grower is advised to keep his seed in bins rather than in sacks, in order to avoid damage from mice or other causes. As soon as the seed offered by a given grower has been ordered, he is instructed by the Secretary to sack the seed and to advise this officer as to the number of sacks he has and the weight of seed in each sack. Certificates of registration are then made out for the above number of sacks and these are placed in the hands of an inspector who goes to the grower's place of business and makes a final inspection of each sack. If this inspection proves that the seed is capable of passing the standards of purity, etc., a certificate is placed in each sack, and the sacks immediately sealed with a lead seal bearing the name of the Association. Under each seal a tag is placed which bears certain information such as the certificate number, variety, weight of sack, per cent. germination and the initials of the inspector. These sacks are now ready for shipping and may pass through any number of hands without losing their identity. On the back of each tag certain information is given for the benefit of purchasers who may desire to continue the registration of the seed purchased.

This system is being worked out this year for the first time, and may have to be modified to some extent. There may be cases for instance where it will be necessary to make special provision for the sealing of sacks by some individual other than the regular inspector. These are matters, however, which will regulate themselves as time passes. The advantages of the care that is being exercised in the handling of registered seed, should appeal both to the buyer and to the seller of high-class seed.

During the past year important amendments have been made in the regulations of the Association which are likely to mark an important step in the development of this organization. The aim of these ammendments has been to simplify the terminology in the first place, and in the second to admit for registration, seed which is two generations further removed from stock seed or what was formerly known as *improved registered seed,* than has hitherto been the case. It is our aim to put the handling of registered seed on a high commercial basis. We wish to increase the supply of real good seed in Canada and to encourage its distribution throughout the country to the best possible advantage. We have in Ontario, this year, a little over 3,000 bushels of registered seed. Many times this quantity are required and it shall be our aim to work toward increasing this supply in future years.

Q.—What means have you of regulating prices?

A.—The members put the price on. Sometimes they ask for advice regarding the price. One grower had 200 or 300 bushels for sale, and he sent it to be cleaned. He was asking about 2c. a pound for it. We advised him to re-clean it and he actually graded out 50 per cent., and then he said, "I must have a little bit more for that seed," and we advised him that it should be worth from 3c. to 3¼c. a pound including the sacks. I do not think any reasonable man would find fault with that price.

Q.—What do you consider a fair price for corn?

A.—It is pretty hard to say. It depends on the variety and breeding. I think there should be a uniform price for the different corns. Some are asking 3½c., and some are asking more, and some are asking less than they should. It nets them approximately 95c. or $1 a bushel.

Q.—Do you publish the quality of seed each grower has?

A.—We publish the approximate quantity they will have. One man in Carlton reports about 3,000 bushels. He expects he will have almost 2,000 bushels of clean grain for sale.

SOME OBSERVATIONS ON PLOT INSPECTION WORK.

T. G. Raynor, Seed Branch, Ottawa.

It has been my privilege now for six years to visit members of the Canadian Seed Growers' Association in Ontario, who are making an endeavor to improve the crops of our country by improving the quality of the seed used after the plans adopted by this Association for mass selection and the use of multiplying plots. There have been about 110 plots reported upon this year, including crops of both fall and spring wheats, barley, peas, corn, potatoes and tomatoes.

There are men who were in this work six and more years ago who are in it now. and there are some who were in it then who are not in it now. Some of them should be at it still; the dropping out of some others has been no loss to the Association. The success of the work depends to a large extent upon the survival of the fittest, it is a matter of selection of men as well as of seed.

Those who are continuing the work successfully are those who see in the work more than the material side. They see the possibilities of the work, they get real genuine pleasure from it in watching the changes and in making comparisons with the other crops they grow. It becomes a place to take visiting farmers to, a theme for conversation, a thing of beauty. It also pays. Of course, it would not be so attractive if there were not some financial rewards and it adds a lot to the enthusiasm in carrying out the methods.

As everyone is aware, this has been a peculiar year for many crops in Ontario. Western Ontario for the most part suffered extremely from the dry weather of the late spring and early summer months. Here and there the moisture conditions were more favorable and varying results followed. Early in the spring the hard frosts with dry cold winds, which in many places killed the red clover meadows and injured some alfalfa ones as well, did great damage to fall wheat in the same localities.

As a result some of the fall wheat plots were not so good as others. It is a remarkable fact, however, that within a few miles great variations in crops were manifest. It was a year that indicated not only good soil, but good and poor soil well worked. In the case of two of our growers of fall wheat, their system of rotation and good farming methods were quite manifest, not on their small plots alone, but on the field area they had into the whole crop. C. R. Gies, of Heidelburg, for instance, who manures on meadow after hay or pasture, plows and works up a good seed bed and seeds it with fall wheat, has not failed in the last six years I have visited his place in securing over 40 bus. per acre. This is all the more remarkable when his results are compared with the average of his neighbors which is possibly 30 bus. per acre. Mr. John McCallum's Abundance fall wheat was only a little less remarkable in the same way. In both crops there was considerable less straw, but the heads were full of good plump seed.

One of the places very hard hit by the continued drouth was Bobcaygeon and vicinity. This is where Mr. Wm. Lewis, of Dunsford, operates. The stand of his crops was good, quite even in growth, shorter in straw than usual and of necessity much less in yield. Yet, compared with crops in his neighborhood, they indicated a higher average. Threshing results for that locality have demonstrated this, as a good average for the neighborhood would be 20 to 30 bus. of oats and 25 bus. of barley per acre, while his yields showed 30 to 50 bus. and 35 bus. per acre respectively. Again there is the case of Mr. Alf. Hutchinson's potato patch, which, notwithstanding the large acreage planted, gave a creditable yield for any year, viz:

200 bushels per acre, which is very much above the average yield per acre for the Province and away above the average for this year. There must be something more than soil, cultivation, manuring, etc., to account for such results.

A number of the corn men had some interesting work to show this year. Mr. J. H. Coatsworth, of Kingsville, with his hybrid strain of corn, Coatsworth Hybrid, had a very even field which gave splendid promise for a large yield of matured corn. Results have amply justified this conclusion, as the yields have been about 120 bus. per acre of corn in the ear. As has occurred for some years now, Mr. A. H Woodbridge, of the same locality, had a fine piece of five acres of Reid's Yellow Dent, which yielded some 115 bushels per acre. Mr. Robt. Thompson, of St. Catharines, who grows a flint corn, Salzer's North Dakota, had a field worth looking at, although the Niagara Peninsula suffered from a prolonged drouth. It was sown on a clover sod, autumn plowed, and so thoroughly cultivated that it got little or no check, and yielded, I believe, at the rate of 116 bushels per acre of ear corn.

Mr. Chas. Pierce, of Wellington, makes a specialty of growing an early strain of sweet corn, Pearce's Evergreen, a selection from Stowell's Evergreen, and this year while he had a good stand he was up against the drouth pretty hard. He succeeded, however, in getting a yield of about 2½ tons green corn per acre and compared with the prospects his neighbors had his corn was much better.

Instances might be made of the work of other corn men, but this reference would not be complete if I did not mention the plot work of T. G. Shepley, with his Reid's Yellow Dent and his Wisconsin No. 7. The latter plot was a sight especially worth seeing. The ears did not vary more than six or eight inches in their position on the stalks about 3½ feet from the ground. They looked like a regiment of soldiers called to attention as you scanned the rows. The value of frequent and thorough cultivation was strongly demonstrated in the growth on these plots. There was a considerable amount of bunt on a number of corn fields this year, no doubt due to weather conditions to a large extent.

From the array of evidence, and much more might be deduced, it will be seen that selection of seed must count for something. When the good qualities of a seed become fixed they are transmitted. Even when the season is adverse, they seem to be able to give a good account of themselves.

All with whom I discussed the proposed new regulations in the methods for seed exchange, through inspection and use of seals on packages, were well pleased with the idea. With the increasing demand for good, pure vital seed I believe there is in store for members of the Canadian Seed Growers' Association who live up to the standard, a bright and encouraging future. There is room for more farmers who are willing to pay the price to take up this very important work.

REPORTS OF POULTRY JUDGES AT THE ONTARIO PROVINCIAL WINTER FAIR, 1911.

Walter H. Butler, London.

Game were a grand lot in nearly every class, fully up to former years in quality, and too much cannot be said of the winners, which were without exception, full of merit. It was very apparent that the putting in condition and fitting up of the birds had been very carefully attended to, especially so might this be said in regard to the Bantam classes. Every breeder seems to know the desired type and the most approved way of training. However, I would caution breeders to exercise more care, as too much training is as bad as not enough. Proper fitting should not leave the birds in a fagged state, but it certainly will if overdone. It is the duty of every exhibitor to fit his stock so that they might be shown at their very best.

The *Black Reds* made a very nice display. 1st cock, good head and eye, long neck, short body and always standing in a nice easy position, color perfect. 2nd, another very fine bird, identical in every part but legs, which were a little close. 3rd, a very useful bird, little smaller but some good points. Hens; 1st, one of those nice even colored ones, good head, neck, fine shape, cherry red eye and stands on good rangy legs. 2nd and 3rd, not so good in color but shapely and in good trim, others in this class were well worth special mention. Cockerels; 1st and 2nd, looked like clutch mates, the former being winner of the $50 trophy, fine shape, light lemon hackle and saddle, good in their black, well shown. 3rd, a very early bird, a little dark for the above company, but good style and shape. Pullets; 1st, 2nd and 3rd, very little choice, color being the deciding point.

Pyles, an extra fine lot. 1st cock, a beauty, lovely shape, good size and range, nice limbs and exquisite in color. I can only remember ever seeing one better in my 30 years' experience. 2nd and 3rd, were also good birds and they must certainly have felt proud in such good company. Hens; 1st, a very good one, often been commented on. 2nd and 3rd, very nice type but not quite the style of the 1st. Cockerels and pullets show good breeding but not quite ready.

Brown Reds, a small class but good. Duckwing, a bit stronger than last year. One or two unadubbed cockerels look very promising. Birchens, small class but some good stuff. Sumatra, the best cock had to be left out, being in poor condition. 1st, nice small head and comb, fine flowing tail, good shape, lustrous color. 2nd, a good shapely bird, but red in face. 3rd, smaller and not quite so long in feather. Hens; 1st, somewhat small but stylish, grand in color and condition, lovely sheen, good head and eye. 2nd and 3rd, nice rich color, good shape. Cockerels, all three winners, very fine lustrous color and plenty of feathers. Pullets; a good lot.

Indian Game: Cocks; 1st and 2nd, very much the same type, massively built, great width of shoulder, low set and plenty of bone. 3rd, very close up. Hens; the winners were finely laced, good shoulders, rare shape and size. Cockerels and pullets, a very nice lot, two cockerels, in this class looked a little old for this year's company.

Pit Games made an extra good class, both in number and quality, some very good birds on view the winners being in good shape and condition, very corky, in fact, as hard as nails. Might say it was a grand class of this much talked of variety, comprising nearly as many as all the moderns combined, and I still think the name a detriment and the classification not as it should be. There were something like 65 in one section, all colors. In any other variety I noticed an extra good pair of Malays, tall, good bone, very prominent shoulders, grand brows and in nice condition.

Game Bantams: A grand array of Black Reds, about the most even class I ever saw at the Ontario. Cock; 1st and $50 cup, a grand bird, fine head and neck, correct station, lovely small tail carried at the proper angle and was always to be seen standing upright and dainty. When handled, he was found tight and hard both in body and feather. 1st, Black Red cock a good one. 2nd and 3rd, two very fine birds, very trifling difference. After placing the awards my attention was called by an exhibitor to a bird of his at the end of the row, this bird was ticked with red quite noticeably in breast, main sickles edged with red, wing bow dull color, but nice style, should think him a good pullet breeder. Hens; 1st, an easy winner, nice even tone of color, capital shape and handles well. 2nd, a good hen, not quite so nice in color but close up. 3rd, a very good bird but did not handle so well. An extra good class of Black Red females—cockerels; 1st, splendid station, nice shape and color, always stood in good position, tail not full grown, about his only fault. 2nd and 3rd, two splendid birds, a good class both in number and quality. Pullets; 1st, nice neat body shape, good even color, easy winner. 2nd, 3rd and 4th, birds of very high quality; all four were very nice shape and small body.

Brown Reds composed some beautiful birds, easily excelled former years, the improvement being noticeable in all sections. Cocks; 1st, and cup, very neat body shape, fine in bone, good tail, nice even round lacing. About his only fault being a little long in secondaries. 2nd, a good bird, grand color, losing to first in shape. 3rd, a fairly good bird, a little dark. Hens; 1st, splendid shape, lovely color. 2nd, a good shape, dull in color, looked as though she had not come through moult right. 3rd, same style as 2nd but trifle shafty on back. Cockerels; 1st, small body, fine bone, nice lacing, light green color. 2nd, taller and larger, but grand color. 3rd, equal in shape, but darker color. Pullets, a very good even class.

Duckwing, Golden: Cocks; 1st, good stylish bird, nice shape and color, small and fine in bone. 2nd and 3rd, splendid quality, close up. Hens; 1st, soft even color and good shape. 2nd and 3rd, very much the type of first but a little shafty. Cockerels, not quite up in color, very promising shape. Pullets, a fair lot.

Duckwing, Silver: Cocks; 1st, comparing very favorably with any, grand shapely bird and good color. 2nd and 3rd, not much wanting. Hens; a very nice class. Cockerels and pullets, a first class lot; the two above classes are coming steadily forward.

Duckwing, Pyle: Not a poor bird in the class. Cocks; 1st, nice shape, good in his white, always standing and showing himself to the best advantage, two good shaped shoulders, nice top color and stands well, off in breast color. 3rd and 4th, very good birds to own. Hens; 1st, clean top color, salmon breast, small body, nice shape. 2nd, 3rd and 4th, all good. Cockerels; an extraordinary good lot; 1st, grand shape and style, clean in his white, good legs, very nicely drawn indeed, wins easy. 2nd and 3rd very good birds. Pullets; 1st, good shape and color, handles well, a good one, but not feeling at her best; balance of the class very good, will be some grand hens for next year.

Birchen: This class was much improved over last year. Cocks; 1st, a little large but grand shape and style, wins well, a trifle too much lacing, perfect tail. 2nd and 3rd, fit to win at any other place. Hens; a first class lot. Cockerels; 1st, small, good shape, nice short back, very well penned. 2nd, lovely color, very close up. Pullets; a beautiful lot. 1st standing well to the front, balance all good.

White: 1st and 2nd, good shapely birds, nice square shoulders, typical bantams.

Black: A very good class.

Indian Game Bantams, an improvement over last year.

GEORGE ROBERTSON, OTTAWA.

White Dorkings: Not a large class but some extra nice stuff. Cocks; 1st, a good one, grand in type; 2nd, not so good in type, high in tail, but excelling in color. 3rd, shown a little rough. Hens; 1st, true Dorking type and large. 2nd, another good one, all Dorking. 1st cockerel and 1st pullet pen mates, both nice birds and good in type. 2nd cockerel and 2nd pullet pen mates, younger and not so well developed but of good type and very white. Colored: Cocks; 1st, looked a little the worse for wear, having had his comb partly frozen off, but was grand in body and was all Dorking. 2nd, also looked a little rough, as he was not well feathered on neck, but was somewhat better in type than the 3rd, which was in the best condition of any of the winners. The three winning hens were all good, the 1st being especially good in type. 3rd was not quite so good in length of body as the other winners. Cockerels; 1st, a grand one both in type and color, should make a great cock. 2nd, younger, but of the same kind, looked like a brother. 3rd also good. Pullets; 1st, a large one, of good type. 2nd, not so mature but good all over; 3rd also good.

Silver Grey Dorkings: A large class of good quality. Cocks; 1st, a really good one, clean in color, rich in black, and of typical shape. He won the specials for best shape, best color, best male and best bird. 2nd, a nice bird, not so good in shape and not so clear in color. 3rd, a good type, but weak in wing and shows purple on wing bar. Hens; a grand class some good ones having to be left out. 1st, wins on type not so clean in color as some of the others, but an immense hen of grand Dorking type. 2nd, wins color special, just loses to 1st on shape. 3rd, a good all round one. Cockerels; 1st, a grand big fellow of magnificent type, not so clean on wing bar as I would like, nor so strong in wing. 2nd, wins color special, a very clean one, rich in his black and free from purple, loses on shape to 1st. 3rd, a young bird of great promise. He will make a very massive cock of the true Dorking type, long, broad and low, set with grand legs and toes. He has nice clean top color, good clean wings, but I am afraid his breast and thighs will not be as clean as they should be. Pullets; 1st, a large well-developed bird of grand type. 2nd, loses to 1st on shape. She is not so old but is very clean colored, winning the color special. 3rd, a mate for 2nd, of the same type and color. Both of these birds had nice clean color and free from brickiness. The Dorking classes as a whole were very good and it was a pleasure to handle them.

Red Caps: Cock birds very little between the winners. 1st, was a little clearer in color of breast and also in lobe. 2nd, close up, good striping and rich lustre. 3rd, also close up. Hens; 1st, ground color, a rich nut brown, perfectly free from mossing. 2nd, also exceptionally good in color; two grand colored ones, but both could be better in combs. 3rd, good type, but very poor in color. Cockerels; 1st, a good all-round bird. 2nd, looked like a brother, little rough in leader of comb, but also a good one. 3rd, also a good one, just falling short of the quality of 1st and 2nd. Several other good cockerels in this class. 1st and 2nd pullets, like 1st and 2nd hens, standing well ahead of the rest in color. They were good all over and promise to have nice combs when fully developed. 3rd, also a good one.

La Fleche: A small class of good quality. Cocks; 1st, a typical La Fleche, good in type and color. 2nd and 3rd, also good. Hens; 1st, wins on shape. 2nd, wins on color special. 3rd, also good. 1st cockerel and 1st pullet both good.

Creve Couers: A small class of fair quality. Javas; both black and mottled, poor classes. Many of the birds shown might have been disqualified without any injustice having been done. In mottled, 1st cock and 1st hen both nice birds but rather pale in lobes. 1st Cockerel also a nice one but young. In black, 1st cock wins the color specials. 2nd cock, the shape special, but is very bronzed. 1st and

2nd hens very fine birds. 1st cockerel and 1st pullet pen mates, young but nice, good type and fair color; rest of class not up to the quality we expect to see at Guelph.

Dominiques: A very poor class, not worthy of special mention.

A. O. V.: In this class were shown Buckeyes, Lakenvelders, Campines, Buttercups, Salmon Faverolles and White Faverolles. The latter were very handsome, the pullet winning the special for best bird in class.

WM. MCNEIL, LONDON.

Black Cochins: Were a small class but had some good ones. Cocks; 1st, splendid in shape, good color and close down to the ground, with good leg and toe feathers. 2nd, another good one, splendid in color, good in shape, but a little high on leg. Hens; 1st had splendid color, good shape, with good leg and toe feathering. 2nd was a little better in color than 1st, but not so good in shape. 3rd, close up to 2nd. Cockerels; 1st, nice youngster but had not age enough, looked a little leggy. 2nd was in the same class. Pullets; 1st, splendid shape, grand in color, nice and short on leg and well feathered. 2nd, a nice one, but not so good in shape or color as 1st. 3rd was a youngster.

White Cochins: Were another small class. This variety is sadly neglected, and it is a great pity, for there is nothing nicer than a White Cochin. Cocks; 1st, good in shape and splendid in color, but a little too small. Hens; 1st, was a nice one and of good Cochin type, nice short neck and back with a splendid cushion, good leg and toe feathers. 2nd, about as good.

Black Langshans: Were a good class of splendid birds. Cocks; 1st, was a Langshan from head to toe, stood well up and had a good deep body, with a nice high tail and short back, grand head and comb, green as a bottle, without a speck of purple. 2nd, a fair bird, splendid in color, good head, a little short on leg, and too long on back. 3rd, a good mate. Balance of class fair. Hens; 1st, was about the best I have seen for a long time and a good mate for 1st cock, splendid head and comb, stood well up with a good high tail and deep body, short back and grand in color. 2nd, another nice hen, good in color with a nice head and comb, little too short on leg and too long in body. 3rd, a fair hen. Balance of class all good. Cockerels; 1st, a mate for 1st cock, with a splendid head and comb, a good long neck, very short on back, a good high tail, but hardly full enough on breast, splendid color. 2nd, a fair bird, good head and comb, a little short on tail and long in back, otherwise good. 3rd, a little better in shape but not so good in color. Balance of class all good. Pullets; 1st, a nice one, easy winner, nice head and comb, good short back and fair tail, with nice leg and toe feathering. 2nd, another nice one, but not so good in color as 1st. 3rd, a little young. Balance of class fair.

White Langshans: Were a small class and not well shown. Cocks; 1st and 2nd were both creamy and not much difference in them. Hens; 1st, was best in shape and an easy winner. 2nd and 3rd were fair hens. Cockerels; 1st and 2nd were fair birds but too young. Pullets were nice but not large enough.

Hamburgs: Were the best I have ever seen at the Winter Fair, or I might say in Canada, and there were very few that were not good enough for a first prize. Golden Spangled: Cocks; 1st, was a nice bird, fair comb, a little off on ear lobe, grand saddle and hackle, nice back, with a good tail and a well spangled breast. 2nd, another good one, not so good in comb and earlobes, very good saddle and hackle, fair back, hardly so good in tail, not so well spangled on breast as 1st. 3rd, a fair bird, a little better on comb, not so good on earlobes, a little too dark on saddle and hackle, splendid tail, well spangled breast, but tipped a little with white. Balance of class good. Hens; 1st, splendid head, good comb and earlobes, nice hackle, well spangled back and breast, but a little too dark in color. 2nd, another good hen, not so good in comb, a little better in earlobes, nice hackle, good back, a little better in color, well spangled breast, but a little mossed with white. 3rd, a fair hen but hardly too good in color. Balance of class all fair. Cockerels; 1st, was a grand big bird, good comb, splendid earlobes and wattles, the right colored .saddle and hackle, with a grand flow of tail and splendid in shape, but not good enough in breast spangling. 2nd, another fair bird, good comb, fair lobes and wattles, but hackle and saddle too dark, but had a nice spangled breast. 3rd, another fair bird, hardly so good in comb or earlobes, fair saddle and hackle, not so good in tail, well spangled breast but a little marked with white. Balance of class good. Pullets; 1st, had a nice head and comb, with splendid color back, saddle and hackle, with a grand spangled breast. 2nd, another good one, nice head and comb, good back with a grand spangle, but had a little purple barring. This pullet had a grand spangled breast of the right shape, was a little out of condition or might have got a little higher. 3rd, another nice one. Balance of class all good, in particular one pullet that wasn't placed was the best of the lot, but the owner forgot to take some stubs out of her toes. Silver spangled Hamburgs were another grand class. Cocks; 1st, was an easy winner, nice size, splendid head and comb and good earlobes, grand hackle and saddle with a splendid back and extra good tail, with a well spangled breast. 2nd, another good one, fair comb, a little off on earlobes, nice hackle and saddle, fair tail, not so good on breast. 3rd and 4th, both good. Balance of class good. Hens; 1st, a fine big one of splendid shape, with a nice head, comb and wattles, a well spangled back and breast, good neck and tail and as green as a bottle, but spangles a little too long to show well. 2nd, another nice one, fair comb and earlobes, good back, nice tail, well spangled breast, not as good a sheen as the 1st. 3rd, was another nice one, but a little out of condition, with fair comb and earlobes, nice back and breast, a little lighter in color than 1st, and had she been in condition, would have given 1st a hard run, a little off on tail was her worst feature. Balance of class all good. Cockerels; 1st, was a good mate for the first cock, I haven't seen anything like him for a long time, grand head, comb, earlobes and wattles, with a splendid neck, back and saddle, with a grand tail and a well spangled breast, snow white, and as green as a bottle, he was an easy winner. 2nd, another nice bird, fair head, good comb, wattles and earlobes, a nice back, good tail, hardly so good in breast as 1st. 3rd and 4th, both close up to 2nd. Balance of class good. There was not a poor bird in the class. Pullets were another grand class. 1st, had a nice head and comb, good earlobes and wattles, nice hackle, well spangled back and good tail, back a little too dark, good breast. 2nd, another nice one, fair head and comb, splendid earlobes, a little dark on hackle, had a good back, nice tail and well spangled breast, but not as nice a greenish black as the 1st. 3rd and 4th were both good. Golden Pencilled were a small class but of splendid quality. Cocks; 1st, was a typical Hamburg, just about as perfect as you can get them, grand head and comb, earobes and wattles, and of a nice rich bay color all over, with a splendid black tail, nicely laced, just about perfect. 2nd and 3rd, both good birds. Hens;

1st, was an easy winner and a good mate for 1st cock, she was about the most perfectly pencilled hen of any kind in the Show, with a nice head, good comb, fair earlobes and wattles, grand shaped back with nice tail. 2nd, was a fair hen but not so good as the 1st. 3rd, was close up to 2nd. Cockerels; 1st, was a beauty, a good mate for 1st cock, he was grand in size, splendid head, comb wattles and earlobes, good neck and splendid back, good golden bay with a splendid black tail and well laced, just about perfect. 2nd, was a little beauty but a little out of condition, about as perfect as it is possible to make one. 3rd, a fair bird. Pullets; 1st, a nice mate for 1st hen, and an easy winner. 2nd, another good one, but I had a doubt about her being a pullet, but the owner convinced me she was a pullet, so I gave her the benefit of the doubt; she is a grand one. 3rd, was fair. Silver Pencilled were another small class, but had some good ones. Cocks; 1st, was a grand big bird, splendid in color but a little rusty on wing, good head and fine comb, nice earlobes and wattles, grand colored neck, back and saddle, with a grand black tail and splendid lacings, nice breast. 2nd, another good one, fit to win anywhere, good head and comb, nice earlobes and wattles with a good neck, splendid hackle, nice back, good wing, splendid back tail, but not so well laced as 1st. Hens; 1st, an easy winner, little too large on comb, nice earlobes and wattles, good neck and a grand pencilled back, just a little too fine, but about as even as I ever saw, a well pencilled tail, bars straight across, just about perfect in breast. I believe she is the best silver pencilled hen I ever saw. 2nd, another fair one, good head and comb and earlobes, with a good hackle, nice back, but just a little too coarse in pencilling. 3rd, another fair hen. Cockerels; 1st, would make a nice mate for the cock, fine size, with a nice head and comb, good earlobes and wattles, splendid neck and back, grand saddle, nice green-black tail, but perfectly laced. 2nd, another good one, fair comb, earlobes and wattles, nice neck, good back, with a good tail, not so well laced as 1st. Pullets; 1st, nice head and comb, good earlobes, nice neck, a little too heavy in pencilling, but very distinct and grand black sheen. 2nd, another fair bird, a little light and not so well pencilled on breast. 3rd, close up to 2nd, on the breast, she had quite a few bald feathers, also on the knee. Blacks were a grand class, the best I have ever seen anywhere, and after I picked out the winners I could have picked out others that should win; in fact, there was not a poor bird in the class. Cocks; 1st, was about the best shaped Hamburg I ever saw, nice comb, good earlobes, nice wattles, and a bottle green all over, with nice neck, good back, grand shape tail of the right color, and I don't think he had a speck of purple barring on him. 2nd, was another good one, fair head and comb, nice earlobes, good wattles, good neck, and back, but not so good in color as 1st, fair tail, good shape. 3rd, another fair bird, good comb and wattles, but not so good in earlobes, nice neck, back, not so good in shape of tail nor as good in color. Balance of class good. Hens: 1st, is a grand big one, with nice head, good comb, good earlobes, with a nice neck, good back, splendid shaped tail, and a nice mild bottle green all over, without any purple barring; she is a grand hen and in pink of condition. 2nd, another nice one, with good head, neat comb and nice earlobes, with a good hackle and tail and nice back, very rich green black with a little purple, nice breast, fair in shape. 3rd, another good hen, hardly so good in comb or earlobes, good neck, nice back, with a good tail, nice breast, but back a little purple. Balance of class good. Cockerels; 1st, was a grand big bird, a nice comb, good wattles, fair earlobes, but begun to show a little light in face; he was just at his best, in a month from now he will not show so well, he had a grand neck, good back, splendid flow of tail, grand in color, without any purple barring anywhere and an easy winner. 2nd, another good one, good earlobes and wattles, nice neck, good back, tail hardly full, otherwise a good one. 3rd, another nice one, not so fully developed as 1st and 2nd, but will make a nice bird, good comb, splendid earlobes, good hackel, back and saddle and a fair tail. Balance of class all good. Pullets; 1st, was pretty near perfect, grand head, fine comb, nice earlobes and wattles, with splendid neck, good back and grand tail; she was bottle green all over without a speck of purple barring, the only fault I could see was her knees were a little too close, though not knock-kneed. 2nd, another good one, splendid head, grand comb, and earlobes, good neck, nice back, a little high in color with a slight purple bar and one or two light tips on wing, otherwise she was a good one. 3rd, another nice one, fair comb, not so good in lobes, nice neck, fair back, good tail, splendid body color, but a litte small in size. 4th, another good one, close up to 3rd. Balance of class all good.

Sultans: Were a small class and they are going back. Cocks; 1st, about the right size, but lacks in crest and muff, also in leg and toe feathers and vulture hocks. 2nd, also short in crest, muff, and not so good on leg and toe feathers. Hens; 1st, a fair bird, nice little crest but not enough of it, fair beard and muff. good leg and toe feathers, nice vulture hocks. 2nd and 3rd, not much between them. Cockerels; 1st, a fair one, but a little too young, he will make a fair bird when older. 2nd, had a small crest. Pullets; 1st, a mate for 1st cockerel, 2nd and 3rd, both fair but too young.

Silkies: Were a small class of good quality. Cocks; 1st, a nice one, a little too much comb, good color and a nice silkie. 2nd, close up to 1st. Hens; 1st, was a beauty and fit to go anywhere and win, grand crest, nice neck, good back, nice cushion, good tail, well feathered legs with good toes. 2nd, about as good excepting crest, which was a little smaller. Cockerels; 1st, was a good bird but stands too high. 2nd, another good one, but hardly enough crest. Pullet; 1st, a mate for 1st hen with a grand crest, nice short back, good cushion, short tail, good leg and toe feathering, splendid toes; 2nd, close up to 1st but not so good in crest.

J. E. Bennett.

White Plymouth Rocks: A better class was never seen at the Ontario. Cocks; 1st, a fine large bird, good shape and as white as snow, a nice comb and good legs. 2nd, another very fine one and close up to 1st. 3rd, a little off in shape of comb. 4th, not so good in color. 5th and 6th, real good birds, but not up to winners. Hens; were another grand class, and there was not a poor bird in the lot. 1st, fine shape and as white as snow. It was hard to find a fault anywhere with her. 2nd, ran first pretty close. 3rd, another grand hen right close up. It would be very hard to get three better hens together, both for shape and color. 4th and 5th lost in color. The prizes ran up to tenths, and those that did not win were a credit to the Show anyway. Cockerels were a very large class, and quality great in first five winners. 1st, large grand shape and white, good comb. 2nd, not as nice in shape of back but just as white. 3rd, just a little off in comb. 4th and 5th, right up and very close to winners. 6th and 7th lost in color of back. The rest of the class were good and lots that could win in a smaller Show. Pullets;

a large class, and the first three winners were something great. 1st, like 1st hen, good shape and as white as snow, would be hard to find any fault anywhere with her. 2nd, not quite as large, but very white. 3rd, a little younger. 4th and 5th, lost in condition, grand pullets but not fitted up like the winners. The rest of the class fair. Quite a lot of the pullets showed cream and yellow in color.

Barred Rocks: Were another large class, but cannot say that they have improved as much as I would have liked to have seen them. They were not as nice in shape nor up to standard weight as the whites were. The cocks did not seem as far advanced as the whites. 1st, was a large bird, good shape and well barred, but too dark on back as I read the Standard, his tail not all in yet. 2nd, large bird, clearer in color but not nearly ready yet, should make a good one later on. 3rd, seems to have lost in shape, and did not seem to have the life in him to show well, but was well barred and a nice color outside. 4th, lost in color. 5th, not ready yet. There was one cock that stood next to the winner that I like in color, but was too wild to show at all. The rest of the class fair. Hens; 1st, the best of all the Barred Rocks, and as she won for best hen in the Show you will know that she was something extra, nice shape, grand barring, nice blue and good legs. 2nd, another grand hen, not quite so far advanced, nice blue, well barred. 3rd, not so clear in color. 4th, not ready yet. 5th and 6th, dull in color. Rest of the class fair. Cockerels, a lot of cockerels, but like the old cocks, not very many of them ready and lots of them too dark in top color. I like a good Barred Rock with that nice sharp blue barring. 1st, large bird, good shape, well barred, the farthest advanced might have been a little brighter in color. 2nd, a nice blue, well barred, good comb, and nice shape, not any too large. 3rd, lost to 2nd in color of back. 4th, lost in shape as well as color. 5th, young and not ready yet. The rest of the class good and some will be a lot better later on. Some of them had not lost their chicken feathers yet. Pullets, like the cockerels, wanting in both shape and size. 1st, like first hen, grand in barring, nice blue, nice shape, but on the small side. 2nd, very fine in barring and very straight across, but too young. 3rd, another good pullet and will make a good hen, nice blue. 4th, not so clear in color. 5th, lost in color.

Buff Rocks: Made a nice class, though not as large as the white and barred. Cocks; 1st, nice even buff all through and good shape, good comb and legs. 2nd, not so nice in shape or so good in color. 3rd, darker and not in good condition. Hens; 1st and 2nd, nice even buff and grand shape, looked like two sisters, not much to choose between them, 1st, a little better under color. 3rd, lost in color and not so even in back. 4th, lost in shape. Cockerels, a good class. 1st, a large good shaped cockerel, rather large in comb and darker in color than I like to see. 2nd, better in color, but lost in shape to 1st. 3rd, nice but younger. Rest of class good but young. Pullets; 1st, like 1st hen, nice even color and shape. 2nd, good shape and runs first well, but not so good in under color. 3rd, lost in shape and color of back. The rest of the class young and will make good ones.

Partridge Rocks: Came out very good and were a nice class. Cocks; 1st, a nice large bird, good color, well striped. 2nd, not quite so good in shape but good in color. 3rd, lost in color and shape. Rest of class good. Hens; 1st, good shape, well laced and good, rich color. 2nd, not quite so nice in lacing, good shape. 3rd, lost in color and lacing. Cockerels; 1st, good shape and color, well striped, nice yellow legs, wins well. 2nd, lost in color to 1st, but good shape. 3rd, good. Pullets; 1st and 2nd, good and not much to choose between them, 1st a little the best in color.

L. G. JARVIS, GRIMSBY.

The exhibit of Water-fowl was the largest and best ever brought together at any Show ever held in Canada.

Embden Geese: A nice entry, and winners extra fine birds. Old Male, deep body, fairly massive in head, much fuller in breast than second. 2nd, fine head. 3rd, not so large. Old goose; 1st, best in body shape, large. 2nd, larger than third. Young male, fine shape, nice condition. 2nd, close up, lost in breast shape, larger than 3rd.

Toulouse Geese: Nice exhibit. 1st, male, an old winner, largest in class. 2nd, not as distinct in markings or as large, large in head, better in color than 3rd. 1st goose, nice shape, in this particular beats others in class. 2nd and 3rd, nearly equal, preferred 2nd in color only. Gander, young, all Toulouse in shape. nice color. 2nd, not as good in color. 3rd, fails in shape. Goose, young, a good one, nice color, with deep body, fine head. 2nd, fair shape, not as good in color, but better than 3rd in this particular.

African Geese: Nice entry and birds well shown. Gander, 1st, old, more massive in head and large, well defined knob. 2nd, nice in body shape, loses to 1st in head and neck shape. 3rd, smaller. Goose; 1st, nice head, good color, fairly deep in body. 2nd, not as good in head. 3rd, smaller than 2nd.

White Chinese Geese: Some fine birds shown, much better than the brown, as a cross with African was very evident in the latter class. Gander; 1st, white, nice head, well defined knob, slim in neck, very white. The same can be said of 1st goose. 2nd gander lost in head shape but better in body shape than 3rd. 2nd goose, a nice one but coarser in head and neck shape. 3rd, not as short in body as 2nd.

A. O. V. Class: A small entry.

Pekin Ducks: Old male, nice head, very long in body and deep, full in breast. 2nd, a good one, large, but hardly as nice in body shape. 3rd, also a good one, not as large as 2nd. Duck, old, grand shape, hard to fault. 2nd, a trifle short in body. 3rd, close up, excepting in head shape. Drake, young, very fine, hard to fault in any section, best in class. 2nd, not as large, better type than 3rd. Duck; 1st, fine in body shape, easily 1st. 2nd, fails in shape of body. 3rd, close up, altogether a grand class.

Aylesbury Ducks: Drake, old, an extra fine one, great head and bill shape, deep body. 2nd, good bird, not as good in color or shape of bill. Duck, a nice one, broad back and good length. 2nd, close up, not as good in head or bill. Drake, young, extra fine, great length of bill, nice color. 2nd, not as good in head or bill shape. Ducks; 1st, a sweet one, great neck and head shape, hard to fault in any section. 2nd, not as good in any section.

Rouen Ducks: Male, old, in color preferred to 2nd. 3rd, not as well defined in color of breast or body. Ducks; 1st, grand shape, 2nd, grand color, not as good in body shape. 3rd, smaller. Drake; 1st, young, nice color. 2nd, nice shape but preferred to 1st in color. 3rd, not as large. Ducks; 1st, nice pencilled, in this particular wins over 2nd. 3rd, close up but gave way to 2nd in color of bill and breast.

Cayuga Ducks: Nice entry. Drakes; 1st, old, wins in color only. 2nd, larger than 3rd. Ducks; 1st, very rich in color of plumage. 2nd, fair color, nice shape, better than 3rd. Drakes; 1st, young, win in color. The same can be said of 1st duck.

Muscovy Ducks: A nice lot. 1st, old, male, wins in shape and color, also old duck. 2nd drake, nice shape, larger than 3rd. 2nd duck small. Some good birds in young class.

Indian Runner Ducks: Drakes; 1st, grand head with broad long bill, very wedged shape, fair in color. 2nd, a good one, not as good in head shape, better in color than 3rd. Ducks; 1st, nice color, better than 2nd. 3rd, close up. Drakes; 1st, young, nice color, nice head. 2nd, well up in color, fails in head some. 3rd, not as nice in color. Ducks; 1st, better in color than 2nd or 3rd. On the whole a very nice class.

Bronze Turkeys: Some grand birds on exhibition, one year gobbler winning for best bird in Show. I don't think we can find a bird that will come nearer to the standard than this bird. Some grand aged birds in this variety shown. In birds of 1911 the winners extra good. Young birds as good as I have handled.

White Holland Turkeys: A nice class, some of the birds were out in the rain the night before cooping and made them in very bad condition, but this was the largest and best entry in this variety that we have seen for years. Decisions were mostly given on color and condition. A. O. V. some nice black, buffs and slate.

Houdans: A very large entry, and some very fine specimens shown. Cocks; 1st, good size and shape, fairly distinct in color, with richness in color of plumage, nice crest color fairly well divided. 2nd, a little splashy in color, otherwise a good bird. 3rd, a good shape, too much white in plumage in some sections. Hens; 1st, hard to fault, wins easy. 2nd, not as large or as nice in color. 3rd, fairly nice color, did not care for her shape or not as good as 2nd or 1st. Cockerels; 1st, plumage rich, would have liked him tipped a little more regularly on back. 2nd, a good one, fails in color to 1st. 3rd, a trifle splashy, fails in crest shape. Pullets; 1st, nice color and beats 2nd or 3rd in this particular. 2nd, better than 3rd in crest shape and color.

Polish Bantams: I cannot say that I can see any improvement this year over previous years in this class; in fact, in some varieties I don't think they were equal in quality to those shown in the last few years. In the W. C. Black, the Golden, plain, some very fine birds, time will not permit me making a full report on this class.

G. H. BURGOTT, LAWTONS, N. Y.

R. C. White Leghorns: As usual, a fine class. Cocks; 1st, a typical white bird. 2nd, not quite as strong. Balance of class good stuff. Hens; 1st, nice type, good color. 2nd, another good bird. 3rd, also a good one. Cockerels; 1st, a showy well made up bird of good color. 2nd, is a nice bird, not quite as well finished. 3rd, is a well put up bird, but lacks to others in type. Pullets; 1st, a clean fine white type of bird. 2nd, not quite as good in type and head. 3rd, is not quite as well finished.

S. C. White Leghorns: Cocks; 1st, fine type, extremely white bird, with fine legs, not quite what he should be in comb, but the best bird there. 2nd, a good clean bird, not as good in color or finish. 3rd and 4th, two very good birds, lack in finish and color. Hens; 1st, a grand one, is out ahead of the rest of her class, good type, white and well fitted. 2nd and 3rd, good enough for most any place and 4th is right after her. The class is a grand one. Cockerels; 1st, is a gem in every way, with the exception of carrying his tail a trifle too low. 2nd, is a fine one, not quite to 1st in type and head. 3rd, is another fine bird, not quite finished and fitted. The whole class good stuff, but not quite equal to 1910 showing. Pullets; 1st, a clean white, fine typed small bird, but shows up right, stands best in her class. 2nd, is a well made up bird but not quite as well fitted. 3rd, 4th and 5th, fine birds but not quite up to 1st, 2nd and 3rd in type or color.

R. C. Brown Leghorns: Cocks; 1st, 2nd and 3rd, all good ones, the first being the finest R. C. Brown cock we ever handled, every part of him good, especially color, superb. Hens, another good class. 1st, however, best of class, right type, with good color. Cockerels, here we find same quality of cocks, 1st, grand color and type. 2nd, is also a fine bird not quite equal to 1st in color. 3rd, we find a trifle weaker in type and color but a strong bird. Pullets; three fine specimens were the winners. 1st, however, excels, as her type and color are fast for a living specimen, an ideal might be better.

S. C. Brown Leghorns: Cocks; 1st, a grand colored bird and strong in type, also 2nd cock, good type, not quite as strong in color. Neither of winners shown in perfect condition. Hens; a good class but not well shown. Hens; 1st, nice type, trifle coarse in pencilling, but even and no shafting. 2nd and 3rd about the same type, none of them appear to be in laying condition. Cockerels; here we find some gems. 1st, and 2nd, seem to be of about same make up and grand, clear color, no smut on neck, good bright green sheen in tail, with fine heads. 3rd, a good tipped bird in every way but shows smut in neck and a trifle purple in tail, but whole class of the very best to be found. Pullets; 1st, is a fine one, clean color, very little shafting, nice even brown striping in good type. 2nd, is also a fine bird, is not quite up to first in type or color but good. 3rd, very close to 2nd. Winners all good, as are some unplaced ones.

S. C. Buff Leghorns: We must say the winning specimens were of all that high class quality fit to win in any Show without any hustle. Fine birds throughout.

S. C. Black Leghorns: The largest class of blacks shown winter of 1911-12; with high quality. The pullet class is strongest, with 1st, 2nd and 3rd pullets the best we ever handled.

J. H. MINSHALL, BRANTFORD.

The *Ancona* class was a surprise of the Show, both in quality and numbers, there being 123 birds. Cocks; 1st, nice comb, grand shaped body, nice carriage of tail and extra color for a cock bird. 2nd, good color and shape of body, also fine tail carriage, loses in head points. 3rd, loses in color of tail and wings, other ways a fine one. Hens; 1st, a beauty for shape and color, with a grand comb. 2nd and 3rd, good shape, nice head points, little on the light shade in color. Cockerels; 1st, I never expected to find as good a one for years to come as this cockerel, and the five that followed him, or for that matter the ten winners. 1st cockerel had the best color I ever saw with a solid wing having just the tips that are desired, even the sickles and the main tail feathers were tipped. His shape was fine and extra good head points. The 4th was next best in color though

2nd and 3rd were also fine color and better shape. 5th and 6th were only a little behind in color and head points. 7th, nice style, grand comb, fails in color of wing. 8th, fails in color of wing and breast, but fine shape. 9th, and 10th, good color, nice head points, not so shsapely as winners. Pullets; 1st, nice shape, good color, with nice head gear. 2nd, also fine color and shape, with good head points, loses on leg color. 3rd and 4th, good color, fine shape, not fully developed yet, the two were very strong on wing color. 5th and 6th, were also good shape and head points, but a trifle light in color.

Andalusians were a good class. Cocks; 1st, good color, fine shaped body and tail carriage, with a good head. 2nd, loses on comb only, a good one. 3rd, too light in color. Hens; 1st, a dandy, evenly laced throughout, fine shaped body, with a good head. 2nd, close up to winner, better shape, but lost on color. 3rd, also a fine one, loses on color. Cockerels; 1st, a beauty for color and shape, rather small. 2nd, loses on color of breast. 3rd, loses in color to 1st and shape to 2nd. Pullets; 1st, 2nd and 3rd, very uniform in type, with nice head points, only color separated them from one another.

White Minorcas: A grand class. Cocks; 1st, was a beauty, the best one I have ever seen. 2nd, loses on shape of comb and condition. Hens; 1st, and 2nd, win on color, being nice shape and very large. 3rd, not well shown. Cockerels; 1st, a good one, grand comb and lobes, fair color and lots of size. 2nd, also a good one. 3rd, nice head but loses on shape of back and tail. Pullets; 1st, and 2nd, a pair of dandies. 3rd, also nice, loses on condition to winners.

Black Spanish: Cocks; 1st, good comb, and a very nice face, fine shape of back and tail and fine color. 2nd, loses on head points and length of back. 3rd. much like 2nd. Hens; 1st, a fine type and color, an easy winner. 2nd, loses to 1st, in color. 3rd, a good hen, not in show shape. Cockerels; 1st, an easy winner, good head points nice type and color. 2nd and 3rd, also good, but lose on combs. Pullets; 1st, a fine one. 2nd, very young. 3rd, nice shape and color, looking a little old.

R. C. Black Minorcas: Cocks; 1st, a fine one, nice comb, good shape, back and tail carriage and good color. 2nd, and 3rd, also fine ones, with grand color. The next cock to the winners is also a grand one, little low on legs only. Hens: 1st, a nice color, good head points and good shaped breast, good length of back, nice tail carriage. 2nd, just as good for shape and size, loses on color. 3rd, also a nice one, not the size of 1st and 2nd, nice color. Cockerels; 1st, one of the best shaped cockerels I have seen, with almost a perfect head, color not quite as good as 2nd, which is another fine one. 3rd, loses on head points, fine color and shape. Pullets; 1st, a dandy, both in shape and color. 2nd and third, also nice but younger.

S. C. Black Minorcas: Were not in big numbers and the quality on the whole was fine. Cocks; 1st, a good sized one, good depth of body, nice carriage of tail, has a good comb and nice color. 2nd, a fine headed one, good eye, fine depth of body, nice color, loses to 1st on shape of tail. 3rd, the best shaped and color of the lot and would be an easy winner only for accident to his comb. Hens; 1st, grand shape and color, a real Minorca in every way, her only setback being pale in face. 2nd, grand color, fine depth of body, good size, her comb not fully out and not ready yet. 3rd, fine shape and a fine head, loses on color only. 4th, also a fine one, lots of size and shape. Cockerels; 1st, a fine shaped fellow, carries a grand tail, wonderful color and fair head points. 2nd, fine shape and color, comb a little high at back, other ways a fine one. 3rd, nice shape, grand color and fine head points, loses in length of back only. 4th, fine head points, nice shape and color, young, loses on size to winners. 5th, nice head, good eye, would not stand up to see him at his best, carried a drooping tail or would have been placed higher up. 6th, 7th and 8th, were all nice birds, fine color but little short on legs and back. 9th and 10th, good size and color, not as well shown as the others. Pullets; 1st, nice full breast, good length of back, fine color, nice head points. 2nd, grand color not quite as shapely as 1st. 3rd, not so large, but fine color and shape. 4th, good type and color and lots of size. 5th, also fine in size and color, fails in leg color.

H. B. DONOVAN, JR., TORONTO.

White Wyandottes: Cocks: 1st, nice white, cobby and a typical dotte. 2nd, nice, not as cobby, good in head and back, white. 3rd, nice not as full in tail, white good breast. 6th, nice, but lacks in breast, white. 4th, might be wider, white. 8th, is big, tail out and wants breast. 5th, nice, plain in back. Hens; 1st, nice, white, good type, might be bit higher in leg, a nice one. 2nd, nice, wants width. 3rd, nice blocky hen, might be broader. 4th, nice, but long in back. 5th, a good hen. 6th, white, and an all-round good hen. 9th, a nice one, but plain in back. Cockerels; 1242, (Vout) one we would liked to have seen in the money, bit high, but a dotte. 1st, nice cobby, white, needs to fill out in breast. 2nd, nice, pure white, tail carriage bit high, will improve. 6th, nice, but plain in comb. 7th, pure white and a very nice bird. 3rd, good, could be improved by a little more width and fullness of breast. 4th and 5th, were both nice cockerels. Pullets; 1st and 2nd, pen mates and nice ones, pure white, neat in head points, typical. 3rd, another nice one, hardly as broad. 4th, nice but plain in back. 5th, nice pullet, not out in tail.

Golden Laced Wyandottes: Were a big class, some nice ones. 1st, Cock, hen and pullet we like. 1st cockerel could be improved in comb, otherwise good. Silver Laced Wyandottes: A nice class. Cock; 1st is better in comb and of very nice color and breast. Hens; 1st, nice even lacing and a good one. 2nd, not quite as good in breast. 3rd, fair. Cockerels; 1st, nice dotte type, and a nice neat, good colored bird. 2nd, fails in wing color. Pullets; 1st, a nicely laced one. 2nd, a nice one.

Black Wyandottes: A nice class of good all-round stuff.

Buff Wyandottes: Cocks; 1st, a very nice even colored bird, of good type. 2nd, also A1 in color, plain in comb and back. 3rd, nice, could be broader, fails in color of breast and thighs. Hens; 1st, a veteran and a good one, even and of type. 2nd, a nice typical hen, cobby and of good color. 3rd, shade darker and not as full in saddle. Cockerels; 1st, a big even colored one and good. 2nd, is nice but wants to fill out. 3rd, another good one, not quite as even. Pullets; 1st, nice, even, right shade, neat. 2nd, good color, pinched in tail. 3rd, a nice one, good color, bit long in back.

Columbian Wyandottes: Cocks; 1st, nice good color, typical, fails in comb, 2nd, also bit off on comb, otherwise nice. 3rd, fair. Hens; 1st, nice, good color, clean in her white. 2nd, not as clean but a good one. 3rd, fair. Cockerels; 1st, very nice type and color. 2nd, good in his black, could be improved in comb. 3rd, a nice type and clean. Pullets; 1st, nice, good color, and condition as is 2nd, two A1 pullets. 3rd, not as good in hackle or tail.

S. C. Rhode Island Reds: Cocks; 1st, nice color, good red, neat in head and good tail and length of body. 2nd, a nice colored bird, good body, pinched in saddle. 3rd, nice body, not as even in color and unfinished. 4th, wants width, has good undercolor, and very fair body. Hens; 1st, nice even and a good one. 2nd, nice deep color, bit Rock in type. 3rd, a good bodied bird, might be more even in color. 4th a nice colored hen but small. Cockerels; 1st, nice neat, good condition, color and body, bit off on comb. 2nd, not long enough, very fair color. 3rd, nice, good color, could be improved in comb and wants a trifle more breast. 4th, nice but narrow. Pullets; 1st, a nice one, has length, could be darker in hackle. 2nd, a nice one but too high up. 3rd, fair color, lacks length, a big pullet.

R. C. Rhode Island Reds: Cocks; 1st, nice big, bit coarse in comb. 2nd, also could be improved in comb, very fair color, white in earlobe. 3rd, might be longer. Hens; 1st, a nice hen of good color. 2nd, bit faded in wing, but a good one. 3rd, nice. Cockerels; 1st, bad comb his worst fault, has color and body. 2nd, neater in head, of good color, bit short. 3rd, nice, good length, very fair color. 4th, nice. Pullets; 1st, nice color, might be improved in shape. 2nd and 5th, pen mates and two nice ones, good reds. 3rd and 4th, also pen mates and much like 2nd and 5th.

J. H. Drevenstedt, Buffalo, N.Y.

Brahmas and Buff Cochins: The Light Brahma Classes were small but made up in quality what they lost in quantity. We particularly fancied first prize cock and pullet, the color markings being exceedingly fine, especially the tail coverts of the pullet, which in well defined, even narrow white lacing could not be excelled. Dark Brahmas numbered but 15 entries, the quality being very good however. Buff Cochins, excellent classes; in fact, the best we have seen or handled in several years. The winning males and females were not only grand in size and well feathered, but were as a rule sound in color.

Orpingtons: Orpingtons made a great showing, with 97 Whites, 81 Buffs, and 74 Blacks competing for the ribbons. Among the Whites, the first and third prize cockerels were excellent specimens of the breed, showing the cobby type and length and depth of body that are indispensable in a good Orpington. These birds were not in the best Show shape, so should improve with age, especially the 3rd prize cockerel, which at present is a bit weak in lobes. Winning pullets a grand lot in color, size and type. Of the old birds, the winning cocks and hens showed much class especially in color and size, albeit a few were too Cochiny in type. Buffs also showed marked improvement in size and color and impressed us as adhering closer to the original type than the Whites. Blacks: excellent classes, color type and size being very striking in the winning specimens, but a few of the hens were too short in shank to suit us.

Cochin Bantams: The whites (34 entries) were decidedly high-class, nothing finer than the winning cocks, cockerels, hens and pullets having been seen in some years. The blacks numbered 62 entries, and it is safe to say represented as a whole, the finest collection of this variety either in Canada or the United States.

Buff Cochin Bantams: (55) were not as strong in males as we expected, the best being the first cock and cockerel; type, size, and color being well combined in these two. But as a rule the other males were different in color and type.

Hens and pullets were more even in this respect, but we believe a little more attention paid to sound surface and undercolor, especially in the tail and flights, will exert a beneficial influence on this variety in the future.

GEO. L. YOUNG, BROOKLYN, N.Y.

The *Bantam* exhibit at Guelph was surely a treat for the fancier, for there he could find quality as well as quantity. In Golden Sebrights one found birds of rare value, both as breeders as well as exhibition specimens. The winning cock was a graceful little fellow, well laced and good color, second and third well up. Hens, as good as they come, laced nicely with a narrow lacing of rich black. Cockerels a good class. Pullets equally as good. Silvers, the best collection I have ever seen shown at any exhibition; first, second and third cocks grand little fellows of good type, well laced and fine ground color. In the hen class were penned some little beauties, the winners being clean cut birds, wonderfully good in lacing and cleanness of tail. Cockerels, all-round good birds. The pullet class excelled, as here we found, without a doubt, the best Sebright pullet out this season, the winner of the National Bantam Association cup for the best ornamental bantam, female, second close up, but loses on narrowness of lacing; third close up. Black Rose Comb, a hot class, first cock being a small bird of good style and color, might have had a little more feather; second and third good specimens. Hens as good as we find them, the winner being a bird of the kind that we like to see, grand in lobe and head points, as well as in color, she was in good condition and a credit to her owner; second and third close up. The winning cockerel a grand bird, very shapely and fine in color, winner of the National Bantam Association cup for the best ornamental Bantam, male; second, a fine bird, better than winner in comb and lobe, but fails in color, being full of purple; third a nice little fellow. Pullets, another hot class, leading off with the winner followed close by the second and third. Other birds that could win in good company were left unplaced.

The *Japanese* classes were of nice quality, the winning black tailed cock as well as the white hen were of the best, the balance of the winners were top notchers.

The *Polish* were a show in themselves, the first bearded cock a wonder, and I doubt if his equal could be found, the best Polish Bantam I have ever seen, the right type, small in size and finished with a grand crest. The winning hen another fine specimen and could hold her own in any company. Cockerels and pullets all good and promise to make good cocks and hens. The very best display of both plain and bearded Booted Bantams the writer has ever had the pleasure to see penned at one Show, and they made a pretty sight; good type and color and well furnished. The Light Brahma class were up to the standard, the winning cock being a grand bird, extra good wing and hackle and fine in tail, proper Brahma type; second close up, but loses in tail. First hen, a good one, a little weak in comb; second better in comb, but loses in wing and hackle. Cockerels and pullets of good quality. A nice lot of Dark Brahmas were penned, the winners standing out in their classes, the first pullet being a rare specimen. Among the A. O. V. class were a cock and hen of Partridge Wyandotte Bantams, and were very good, excelling by far the Partridge Cochin Bantams. A good chance for the owner to make them popular as they surely looked good.

Eastern Ontario Live Stock and Poultry Show.

ANNUAL MEETING.

The annual meeting of the Eastern Ontario Live Stock and Poultry Show was held in the Grand Union Hotel, Ottawa, May 17th, 1912, at 11.30 a.m.

There were present, Messrs. White, Bright, Westervelt, McCrae, Smith, Richardson, Stewart, Belford, Robertson, Garland, Wallace, Grisdale, Gardhouse, Bryson, and the Secretary.

Moved by LIEUT.-COL. MCCRAE, seconded by MR. ROBERTSON, "That as the minutes of the last annual meeting have been printed in the annual report of the Live Stock Associations, they be taken as read and adopted." Carried.

THE REPORT OF THE EXECUTIVE COMMITTEE.

The rapid growth that has characterized the show in recent years was even more noticeable at the last show than previously. In order to accommodate all the exhibits it was necessary to not only make use of all the regular stalls but to provide temporary quarters in both the carcass and killing room as well as in a number of passages. The improvement in the quality of the exhibits was even more striking than the increase in numbers. This applied to all departments, but especially so to the dairy cattle. It was conceded to be the best show of cows in milk ever brought together in Canada for a production competition.

The problem of providing additional accommodation for exhibits is a most pressing one. During the past year plans were prepared for an extension to the easterly end of Howick Pavilion, 100 feet in length by the full width of the present building, and three stories high. Funds have not yet been secured for this work, but it is hoped that at an early date arrangements may be made for the carrying out of the plans.

ATTENDANCE.—The attendance of farmers at the last show was much better than ever before; but, as the privilege of free admission to Farmers' Institute members has now become quite generally known, so many passes were issued that the increased attendance did not affect the gate receipts. The receipts for the last two shows were practically equal. Eight Institutes in Eastern Ontario affiliated with the show, and their fees amounted to $90.20 for over 1,200 passes. Allowing that on an average each pass was used twice the return to the show would be 3⅔ cents for each admission. It might be well to consider if the time has not come for doing away with these passes, or at least for the making of a new arrangement whereby those who attend will be required to pay a reasonable admission free.

COMPARATIVE STATEMENT OF ENTRIES AND PRIZES, EASTERN SHOW, 1911-1912.

——	No. of Entries.		Prizes offered.		Prizes paid.	
	1911	1912	1911	1912	1911	1912
Horses:			$	$	$	$
Clydesdale Stallions	54	38	435	575	420	545
Canadian-bred Clydesdale Stallions	13	27	280	470	230	410
Clydesdale Mares	32	24	140	235	140	205
Canadian-bred Clydesdale Mares	9	20	140	260	140	215
Shires	3	....	140	120	80	....
Hackneys	11	20	300	480	145	440
Standard-breds	3	3	95	215	80	85
Thoroughbreds	3	3	95	155	80	60
Hunters	12	13	60	120	60	60
Ponies	6	4	60	60	45	30
Heavy Draughts	11	7	145	195	140	135
Specials	....	....	65	135	65	135
	157	159	1,955	3,020	1,625	2,320
Beef Cattle:						
Shorthorns	14	30	315	375	225	350
Herefords and Aberdeen-Angus	12	....	100	....	80	....
Herefords	....	10	....	180	....	160
Galloways and Devons	2	....	100	....	30	....
Aberdeen-Angus and Galloways	....	8	....	100	....	65
Grades or Crosses	28	33	430	430	430	420
Pure-breds or Grades or Crosses (amateurs)	....	2	....	275	....	35
Dressed Carcasses	7	7	85	85	85	85
Export Steers	5	7	180	180	180	180
Specials	....	....	60	60	60	60
	68	97	1,270	1,685	1,090	1,355
Dairy Cattle:						
Ayrshires	18	34	215	265	208	265
Holsteins	19	21	315	315	295	285
Shorthorns	4	9	165	165	75	115
Jerseys and Guernseys	14	2	165	165	165	40
Grades	10	17	165	165	145	150
Specials	....	....	60	168	60	168
	65	83	1,085	1,243	948	1,023
Sheep:						
Cotswolds	17	32	89	89	89	89
Lincolns	21	20	89	89	89	89
Leicesters	21	23	89	89	86	89
Oxfords	21	18	89	89	89	78
Shropshires	25	25	89	89	89	89
Southdowns	20	15	89	89	86	83
Dorset Horns	10	10	89	89	64	72
Hampshires and Suffolks	5	20	74	74	40	74
Grades and Crosses	49	80	89	178	89	178
Specials	....	....	....	10	....	10
	189	243	786	885	721	851
Swine:						
Yorkshires	36	28	113	113	113¾	111
Berkshires	18	26	84	114	72	114
Tamworths	14	16	80	93	74	78
Grades and Crosses	36	32	80	93	80	93
Export Bacon Hogs (Alive)	30	31	185	185	185	185
Export Bacon Hogs (Dressed)	27	30	185	185	185	185
Specials	....	....	....	20	....	20
	161	163	727	803	709	786

COMPARATIVE STATEMENT OF ENTRIES AND PRIZES, EASTERN SHOW, 1911-1912.—*Con.*

—	No. of Entries.		Prizes offered.		Prizes paid.	
	1911	1912	1911	1912	1911	1912
Seeds	86	101	351	198	125	186
Poultry:						
Large Fowls	1,421	1,539			1,116 50	1,159 50
Bantams	172	135			182	192 50
Turkeys, Geese and Ducks	155	149			229 50	227
Pens		65				71
Pigeons and Pet Stock	268	353			167	195 25
Sale Class	167	262			65	75 50
Dressed Poultry	119	59			130 25	121
	2,302	2,562			1,890 25	2,041 75
Totals	3,028	3,408			7,108 25	8,562 75

GRANTS.—It is encouraging to note the increasing interest that is being taken in the show by many of the leading Live Stock Associations. The grants made by these Associations are doing much towards improving the exhibits of those breeds whose interests they are looking after. Compared with 1911 the grants for last year were as follows:

	1911.	1912.
Canadian Clydesdale Breeders' Association	$500 00	$1,000 00
Ontario Horse Breeders' Association		100 00
Hackney Horse Society		80 00
Dominion Shorthorn Breeders' Association	125 00	175 00
Canadian Hereford Breeders' Association		50 00
Holstein-Friesian Association	140 00	210 00
Ayrshire Breeders' Association	50 00	100 00
Yorkshire Breeders' Association	50 00	50 00
Berkshire Breeders' Association	15 00	50 00
Dominion Swine Breeders' Association	25 00	50 00
	$905 00	$1,865 00

Previous to the last show the Ontario Government increased the legislative grant from $7,500 to $8,500. The County Council of the County of Carleton offered special prizes in various departments for exhibits shown by amateurs resident of that county. This is something which offers much encouragement to new exhibitors and it is hoped the example will be followed by many of the County Councils in Eastern Ontario.

FINANCIAL STATEMENT

OF THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW FOR THE YEAR ENDING MARCH 31ST, 1912.

Receipts.

Cash on hand, as per last Report	$1,331 15
Legislative Grant	8,500 00
Ontario Horse Breeders' Association Grant	100 00
Canadian Clydesdale Breeders' Association Grant	1,000 00
Dominion Shorthorn Breeders' Association Grant	175 00
Canadian Hereford Breeders' Association Grant	50 00

FINANCIAL STATEMENT.—*Continued.*

Holstein-Friesian Association Grant	210 00
Ayrshire Breeders' Association Grant	100 00
Yorkshire Breeders' Association Grant	50 00
Berkshire Breeders' Association Grant, 1911-1912	65 00
Dominion Swine Breeders' Association Grant	50 00
County of Carleton Grant	80 00
Special Prizes for Live Stock	48 00
Special Prizes for Poultry	98 50
Special Prizes for Poultry, 1913	38 00
Gate Receipts and Farmers' Institute Fees	1,119 15
Entry Fees	2,134 20
Advertising Space in Prize List	35 00
Sale of Catalogues	26 50
Sale of Carcasses and Birds	1,796 20
Membership Fees to Live Stock Associations	2 00
	$17,008 70

Expenditures.

Directors' Expenses	$661 60
Postage	237 55
Stationery and Printing	587 67
Badges and Prize Ribbons	209 43
Advertising	854 15
Office and Office Help	227 50
Telegraph, Telephone and Express	121 57
Judges, Judges' Clerks and Lecturers	870 40
General Help	819 60
Music	101 00
Lighting Building	192 60
Fuel	165 76
Fitting Building	119 92
Straw and Shavings	142 10
Poultry Feed	61 55
Block Test	64 25
Testing of Dairy Cows	194 50
Lunch Room	18 90
Insurance on Poultry Coops and Fittings	22 50
Prize Money Paid	8,572 75
Freight Refunds to Exhibitors	348 40
Overpaid Entry Fees Refunded	22 00
Memberships to Live Stock Associations	2 00
Reporting Meetings	75 00
Exhibitors for Carcasses and Birds Sold	1,796 19
Miscellaneous	16 87
	$16,505 76
Balance Cash on Hand	$502 94

Examined and found correct,
This 16th day of May, 1912.

(Signed) W. R. REEK, *Auditor.*

All of which is respectfully submitted.

Signed on behalf of the Executive Committee:

PETER WHITE, *President.*
JOHN BRIGHT, *Vice-President.*
D. T. ELDERKIN, *Secretary.*

Finances.—The preceding financial statement shows the cash on hand has decreased during the year from $1,331.15 to $502.94. This is in part due to the fact that for several years past the amount reserved for general expenses has not been sufficient to meet the demands upon it, and although the amount available for this purpose last year was considerably greater than usual the larger show caused increases in most items of expenses. Early in the last financial year, the expenses on account of the previous show amounting to $450 were paid. We were able to settle practically all the accounts for the 1912 show before March 31st, and the cash on hand is, therefore, all available for future expenses. As compared with the year previous, the actual reduction in the cash reserve was $378.21.

Moved by Lt.-Col. McCrae, seconded by Mr. Bright, "That the report of the Executive Committee be received and adopted." Carried.

OFFICERS AND COMMITTEES FOR 1912-1913.

President	Peter White, Pembroke.
Vice-President	John Bright, Myrtle Station.
General Director	A. P. Westervelt, Toronto.
Acting Secretary-Treasurer	A. P. Westervelt, Toronto.

DIRECTORS:

Peter White, Pembroke.
John Bright, Myrtle Station.
Wm. Smith, M.P., Columbus.
J. W. Allison, Morrisburg.
Robert Graham, Bedford Park.
John Gardhouse, Highfield.
J. H. Grisdale, Ottawa.
W. F. Stephen, Huntingdon, Que.
Geo. Douglas, Mitchell.
J. C. Stewart, Dalmeny.
R. O. Morrow, Hilton.
R. A. Heron, Billing's Bridge.
Lt.-Col. D. McCrae, Guelph.
W. A. Wallace, Kars.
R. Richardson, South March.
James Bryson, Brysonville, Que.
Geo. Robertson, Ottawa.
Geo. Higman, Sr., Ottawa.
John A. Belford, Ottawa.
W. F. Garland, Ottawa.

COMMITTEES:

Executive Committee: The President, The Vice-President, A. P. Westervelt, J. H. Grisdale, J. W. Allison, Geo. Robertson.

Committee on Horses: John Bright, Myrtle Station; J. W. Allison, Morrisburg; Wm. Smith, M.P., Columbus; Robert Graham, Bedford Park; B. Rothwell, Ottawa.

Committee on Beef Cattle: J. H. Grisdale, Ottawa; John Gardhouse, Highfield; W. A. Wallace, Kars; T. J. Graham, Mosgrove; Bower Henry, Bell's Corners.

Committee on Sheep: R. Richardson, South March; James Bryson, Brysonville, Que.; Lt.-Col. D. McCrae, Guelph; R. R. Sangster, Lancaster; Geo. Bradley, Carsonby.

Committee on Swine: J. C. Stewart, Dalmeny; Alex. Dynes, Ottawa; Geo. Douglas, Mitchell; R. O. Morrow, Hilton; D. Barr, Jr., Renfrew.

Committee on Dairy Cattle: W. F. Stephen, Huntingdon, Que.; E. S. Archibald, Experimental Farm, Ottawa; R. A. Heron, Billing's Bridge; N. Sangster, Ormstown, Que.; T. A .Spratt, Billing's Bridge.

Committee on Poultry: Geo. Robertson, Ottawa; John A. Belford, Ottawa; W. F. Garland, Ottawa; Geo. Higman, Sr., Ottawa; G. H. A. Collins, Ottawa.

Committee on Seeds: T. G. Raynor, Ottawa; Geo. Boyce, Merivale; L. H. Newman, Ottawa; A. H. Foster, Twin Elm; R. H. Grant, Hazeldean.

Committee on Lectures: A. P. Westervelt, Toronto (Chairman).

Reception Committee: Peter White, Pembroke; His Worship the Mayor of Ottawa; A. E. Fripp, M.P., Ottawa; J. L. Chabot, M.P., Ottawa; J. A. Ellis, M.P.P., Ottawa; N. Champagne, M.P.P., Ottawa; Geo. May, Ottawa; J. L. McDougall, Ottawa; J. K. Paisley, Ottawa; J. A. Belford, Ottawa; E. S. Skead, Ottawa; J. H. Grisdale, Ottawa.

Moved by Mr. Gardhouse, seconded by Mr. Stewart, "That the Superintendents be appointed by the Executive Committee." Carried.

Moved by Lt.-Col. McCrae, seconded by Mr. Smith, "That the Executive Committee be hereby authorized to appoint a Secretary-Treasurer and to pay the salary that may be agreed upon." Carried.

Moved by Mr. Wallace, seconded by Mr. Stewart, "That the next Show be held on January 14th to 17th, 1913." Carried.

Moved by Mr. Bright, seconded by Col. McCrae, "That the revision of rules and prize list be left to the Executive Committee with power to act." Carried.

Moved by Mr. Richardson, seconded by Mr. Stewart, "That a small committee to be named by the Chairman wait upon the County Councils of Eastern Ontario and request that grants be made for special prizes to be offered at the show of 1913, and that Mr. John Bright be Chairman of the Committee." Carried.

Moved by Mr. Gardhouse, seconded by Mr. Belford, "That the appointment of judges be left to the Executive Committee." Carried.

Moved by Mr. Bright, seconded by Mr. Wallace, "That the Executive Committee be instructed to follow the one judge system throughout the next show." Carried.

Moved by Mr. Belford, seconded by Mr. Richardson, "That an honorarium of $100 be paid to Mr. Peter White and of $50 to Mr. Geo. Robertson." Carried.

Moved by Mr. Gardhouse, seconded by Mr. Bright, "That this Board of Directors of the Eastern Ontario Live Stock and Poultry Show accept with regret the resignation of the Secretary, Mr. D. T. Elderkin, and the directors wish to place on record their appreciation of the work which he has done in successfully conducting the affairs of the Association during his period of office. Feeling that the large increase in entries and attendance is largely owing to the faithful service which he has rendered."

"It is further resolved that an honorarium of one hundred dollars be given him as a slight evidence of appreciation of work done."

"Be it further resolved that a copy of this resolution be forwarded by the acting Secretary to Mr. Elderkin." Carried.

Moved by Mr. Bright, seconded by Mr. Belford, "That the arrangement with Farmers' Institutes for the admission of members be continued for another year." Carried.

FEEDING ALFALFA.

J. H. Grisdale, Director, Dominion Experimental Farms, Ottawa.

Like the rest of you, I have been very much interested in Prof. Zavitz's remarks upon "Hardy Strains of Alfalfa." Probably before saying what little I have to say upon the feeding value of this very important food, I might refer to Prof. Zavitz's address simply by saying that we in this Eastern part of Ontario are apt to think that men from Guelph and that neighborhood are likely to consider only their immediate neighborhood or district, or, at least, to be more familiar with the conditions as they exist and the crops as they grow there rather than the conditions which we have here and such crops as we are able to grow. Now, I want to say to Eastern Ontario that you need have no hesitation in going in for the growing of alfalfa. Alfalfa can be grown just as satisfactorily and with great deal heavier yields than Mr. Zavitz got, right here in this Ottawa Valley. I know it can be grown, because I have been watching it grow year after year for the last twenty odd years. I have not seen what might be called a failure in an alfalfa crop where it has been grown under fair conditions and given a fair chance. One of the best examples of the success of alfalfa growing which I can recall, and one which struck me very early in my career as an agricultural man, was some crops I saw grown a considerable distance east of here, at La Trappe, an Agricultural College situated on the Lake of Two Mountains, about 70 or 75 miles east of here and near Montreal. I remember seeing a good many years ago some fine crops of alfalfa grown there, and being used for feeding to dairy cows. I had seen here and there little plots of alfalfa grown experimentally, but that was the first time I had seen this crop grown on a commercial scale. From time to time since then I have seen it growing here and there all over this eastern district, and on the Experimental Farm at Ottawa it has been grown very successfully for the last ten or twelve years. We do not grow a great deal of the pure alfalfa, but we mix it with other grasses and clovers, and we get very satisfactory results indeed; not that we cannot grow the pure alfalfa successfully, but we find that where we are following certain rotations it is advisable to grow mixtures rather than pure alfalfas. If you have a plot of ground nicely drained, in good tilth and lying with a gentle slope, and you feel that you can spare this plot for a permanent crop, I can assure you that you will find that no other crop will give you quite such good returns therefrom and such valuable feed as alfalfa.

Permit me to emphasize the importance of paying strict attention to the remarks made by Prof. Zavitz on the different strains of alfalfa. Be sure that you get a hardy strain if you can possibly lay your hands on such a variety of seed. There are a great many varieties grown in Ontario, as Prof. Zavitz has pointed out. But I shall not say anything further upon that. I have to-day to deal briefly with the feeding value of alfalfa.

In the first place, let me say that in growing or experimenting with alfalfa we must not lose sight of the important fact that we must grow it rightly and grow it carefully. Many men take it up as a fad, and as a curiosity—something that is not usually grown so far north, something that will astonish their neighbors, or that kind of thing; but what we should consider is: what is the value of it, what is the good of it? Has it not some special or extraordinary value as a feeding crop, has it not some superiority over other forage or food crops? And right here is where alfalfa shines. While we may expect and anticipate large crops, we may know also that if the harvesting is done properly, if the crop is cut at the right time, we will get a forage than which there is nothing superior in the whole line of foodstuffs on the Canadian market. That may seem like a broad statement, but I have no hesitation in saying it; I can prove it to you over and over again from our own experience and from the experience also of a multitude of men who have experimented with it and who have grown it on a large scale.

Now a word or two with regard to the methods of feeding alfalfa. Alfalfa may be fed in various ways; in the first place we might use it as a grass, but I would not advise or recommend your using it as a grass for pasture, unless you expect to plow the field up either the next year or very shortly afterwards, because pasturing is hard upon this crop, much harder on alfalfa than it is upon alsike or red clover, or the most of the grasses. Alfalfa has a root stalk, or a crown which comes above the ground, and cattle will often eat it off—it is, therefore, not very safe to pasture it unless you can do so at brief intervals. Don't allow them to eat it too close.

Keep your cattle off it when it is short; especially keep sheep off it. If you want to feed it green, and wish to preserve your alfalfa field at the same time, you can feed it green and get very much more good out of it,—very much greater returns—by making it a soiling crop. This is the method we follow at the Experimental Farm. We devote fourteen or fifteen acres of land to the growing of this crop to be used as a forage crop every year; and let me say right here that there is no area on the whole farm that gives so large and valuable a return in the way of feed, and is so remunerative for the small expense there is attached to the laying out of a plot, in looking after it, in harvesting it and feeding it to the cattle. If you don't find use for all the alfalfa cut green, if you can spare a certain proportion of it to convert into hay, then you will have a forage which, if it is cut at the right time, is indeed difficult to beat in the way of roughage. Bear in mind the importance of cutting alfalfa at the right time. There is good alfalfa hay and bad alfalfa hay, just as there is good timothy and bad timothy, or good clover and bad clover.

To get a good stand, a good sample of hay, you must sow the alfalfa thickly; sparsely-sown alfalfa will result in the stalks being thick and woody, and its value as hay consequently greatly decreased, although it will still pay the labor of cutting and harvesting it. The stems of alfalfa, like those of some or of most other plants, are the most difficult to digest, and, therefore, the least valuable as food. Therefore, it is necessary to grow it thickly and to cut at the right stage of its growth; the farmer or harvester must not be tempted to allow the alfalfa to stand too long, as this will most assuredly produce an inferior crop of hay. Sow it, therefore, as thickly as the law allows. I suppose that is about 25 pounds to the acre.

PROF. ZAVITZ: From 20 to 25 pounds to the acre.

MR. GRISDALE: I would say 25 pounds. Sow it good and thick; sow a smaller area, if you can not afford a large one, and make a better crop of that small area. A small area well prepared, well sown, and properly and carefully looked after will give very much greater returns acre per acre as regards the yield and quality than will a large area badly handled and badly looked after. A small area well done is the thing. In making alfalfa hay it is possible to make mistakes just as it is in making any other hay. Once the hay is made, however, and properly made, there is no feed which is of better value which can be obtained for almost any class of stock. If it is not desired to feed it as roughage in the long form, it may be cut to advantage and mixed with meal, or as they do in some parts of the United States, it may be cut up and then ground into what is known as "alfalfa meal." This meal sells at very high prices in some of our markets and is in fact a commercial foodstuff which is quoted regularly in the papers in some parts of the United States. We have not seen much of it in Canada. I don't remember seeing but two or three samples on sale in our Canadian markets. I have no doubt, however, but that there are places in Canada where it is sold quite extensively. Alfalfa meal, however, is a matter that may rest in abeyance for some years; I think we can use to advantage all the alfalfa that we can grow as soiling crop or as hay for some years to come.

Now taking into consideration its value as a hay crop, we might go over the entire list of domestic animals and find it highly suitable and of great value for each of them. I don't know whether it is necessary at this stage to say why it is so valuable, but probably a word or two upon that point would not be amiss. A food is valuable for the amount of protein or nitrogen—they are not quite the same, but similar—and the amount of fat and carbo-hydrates it contains and the proportion in which these exist in the food. Many foods are rich in carbohydrates—practically all foods are fairly rich therein—but comparatively few foods are rich in nitrogen, or have nearly as much nitrogen per 100 pounds dry matter as they have of carbo-hydrates. That is where alfalfa shines; the alfalfa plant, cut at the right time, contains about one-half as much nitrogen as it does carbo-hydrates and fat put together. Most other hays contain from one-third—in very superior clover—down to as low as one-tenth or one-twentieth in some of the poorest kinds of grasses or the lowest food-value grasses; so you see the reason for the peculiar value, for the superior quality—the superior food value of this plant, alfalfa.

It is quite valuable for almost all classes of live-stock for this very reason. Some classes can make better use of it than others, because some classes of live-stock can make better use of nitrogenous foods, than can others.

Beginning with the horse; I may say that we have found that this food is of exceedingly great value, although we have not fed it very extensively to horses. At Ottawa, for some reason, we have found a better use for it. That is, we have found a more profitable use to be made of it than feeding it to horses, but we have fed it to horses at some of our western farms and found it almost equal to hay and oats. It is, of course, not quite equal to feeding a good heavy ration of hay and oats, but where the work is of an average character, where there is no very heavy work going on, we found it to be quite as satisfactory, if the right kind is fed, as feeding hay and oats. It is especially valuable for feeding to young horses and as feed for brood mares and foals; it furnishes them with the elements which are so necessary for the production of muscle and bone and sinew, for the growth and development of the horse.

At this stage His Royal Highness, the Governor-General, arrived on the platform, the audience rising; His Royal Highness stepped to the front of the platform, and said: Mr. Chairman, Ladies and Gentlemen: You are, I see, in the midst of a lecture, and I do not desire to interrupt you, except in a few words to express my pleasure at being present this afternoon at this, I believe, your Tenth Show. It is of great importance that you should come together and each see what the other is doing, what improvements can be made and what improvements have been made. It is of the greatest importance to the agriculture of Canada that everything should be done to encourage the best stock of the best breeds, and the greatest interest in our cattle and poultry. It gives me great pleasure to be here this afternoon, and I feel I must not say any more, because you are in the midst of a lecture, and I should like myself, very much, to hear what is being said. (Loud applause.) His Royal Highness remained on the platform during the balance of Mr. Grisdale's lecture.

Mr. Grisdale: Your Royal Highness, Ladies and Gentlemen: As I was saying before Your Royal Highness arrived, alfalfa is an exceedingly valuable food for horses, but I had just about finished all I intended to say with regard to the value of alfalfa as a food for this particular class of live stock.

When we have done with the horse, the next class of live stock, and one in which we are almost all interested, is beef cattle, and here, as in the preceding class, alfalfa is again of exceedingly great value as food. In those parts of the United States where alfalfa can be grown—as mentioned by Prof. Zavitz, it is the most exclusive food for beef cattle. No grain is given along with it; the cattle are expected to grow up, live upon it and finish off a first-class bullock similar to the best we have here in this show to-day. And I may just say that some of the best animals that were in the ring to-day were fed quite extensively upon alfalfa.

Its value for beef, as in the case of other animals, is more as a hay than as a pasture crop. It can be fed to take the place of meal to a very large extent if fed thus. We feed it at Ottawa here along with ensilage and roots, and find that the amount of meal required is very greatly lessened by the use of this food. Hay, a mixture of alfalfa and red clover and a little bit of alsike, also helps to reduce the amount of meal necessary to make the cattle do well. I can remember an experiment three or four years ago, where we were feeding almost pure alfalfa hay, where it was quite common for the cattle—several bunches of them—to make two, three and even four pounds a day during a period of as much as two or three months. So you see there was something in that ration that made the cattle do well, as such gains are quite unusual with the ordinary run of foodstuffs. I have no hesitation in saying that the cause of the success of these experiments was alfalfa hay.

In regard to dairy cattle; that is where alfalfa shows to the best advantage, for the farmers in Eastern Ontario. As a food for dairy cattle it is unsurpassed, first as a soiling crop in the way already described; second, as hay and third as a substitute for meal. As a soiling crop we use it quite extensively and we can get from two to three times as much value per acre in growing this as a soiling crop as we can in growing any other grass or clover, or substitute for alfalfa for this purpose. Thus it is, you see, of immeasurable value and importance to the average dairyman of Eastern Ontario, to grow it at least upon a small scale. One of our neighbors who has a very large area of land, and who keeps a large number of dairy cattle, has been growing it extensively and very successfully for a number of years, and his experience is that he would rather do away with any other crop on his farm than with an equal area of alfalfa. Although, of course, we who are dairymen know the importance and the great value of ensilage and roots, still alfalfa, if well grown and well cut, is quite the equal of, and, if possible, superior to even these crops which are so absolutely essential to the success of dairying in this Eastern part of Canada. We have, during the past five or six years, used this crop in various ways for milk production. As a soiling crop, as a pasture, as an ensilage crop, as a hay crop, it has in every case shown up to very great advantage. When fed as hay we have found it to be almost the equal of bran as a feed for dairy cows. You thus get some idea of the immense value of this food for the dairymen in the eastern part of Canada. When you remember that you may expect to harvest from 2½ to as high as 4 or 5 tons, and as we have had at Ottawa here sometimes even 6 tons of this hay per acre, you will see the great importance and the great value of it, especially when you consider the high prices at which various feeding stuffs are quoted on the market to-day, where you pay from $22 to $25 per ton for bran. I have no hesitation at all in advising any farmer who is interested in the crop to undertake an experiment upon his own farm. If he has not the necessary information as to the best methods of growing and so on, he can secure the same from us; we have published bulletins on the subject and are only too glad to send them out to anyone who is interested, and there is no reason why you should not be practically interested in the production of a crop so important to the farmers of eastern Canada.

It is sometimes said that inoculated soil is necessary to give the crop a start; this is not always true; we find a good plan to be to sow a little bit of alfalfa a few years alone with the clover, and then the alfalfa will grow all over the farm. If you want to begin growing pure alfalfa at once, you may get inoculated soil from either the Experimental Farm at Ottawa, or from any of your neighbors who may happen to be growing it, as I feel sure that no one would begrudge you a small quantity, such as would be necessary, to inoculate say an acre. There is one thing I would point out—and an important point—in connection with inoculated soil; don't allow it to get dry; it should never dry out, as is apt to be the case if it is shipped a great distance or if it is left lying for a few days in the sacks; use it when it is damp and harrow it in immediately.

Now, to return to the live stock question for a moment; besides the dairy cattle that we produce in this Ottawa Valley, we raise also a number of sheep. And as a sheep food par excellence is this feed to be recommended. It is in the sheep-producing districts of France that this crop has made its record; it is in the sheep-raising parts of the United States that it is looked upon with the most favor; it is in the southern part of Alberta, where sheep are raised most extensively, that the ranchman is keenest to get part of his land under this crop. And it is where it is fed to sheep during the winter as well as the summer that it shows its superior value. Lambs fed upon alfalfa require no meal in conjunction therewith to fit them for the very highest priced markets, to bring them into such shape that they can come to such shows as this and qualify and stand high in their respective classes as they are brought before the judges. It is as a food for sheep, then, that alfalfa is even of greater value than as a food for any other class of stock. One could, however, go over all the different classes of live stock and say that as a food for that particular class it is of the greatest importance and value. One can hardly over-estimate the need and the importance and the great returns that may be expected or anticipated, where this crop can be grown successfully, and the experience of many years has shown that it is possible to grow it sucessfully in this eastern part of Canada.

For pork production it is also of great importance in Eastern Ontario. At the Experimental Farm we have, whenever possible, given it to our breeding stock as hay outside in winter. This, in conjunction with a few roots, is proving a most excellent food for the breeding stock, it has undoubtedly enabled us to lower the cost of wintering brood sows very materially. It has proved of great value as a food for little pigs when fed in the slop. In summer too it is of great value, since it gives them in just the right proportion, the right kind of forage to keep them in good health, to enable them to grow, and to keep them making rapid progress, which condition you all realize is very necessary if we are going to make any money out of this business. Here you might say the list of animals that may be fed on the farm with alfalfa ends. Not so, however; we have some other classes of live stock in Eastern Ontario which can be benefited and which can be fed much more cheaply by the use of this forage than in any other way I know of. I refer to poultry—geese, turkeys and especially hens. When you consider that in these days we are obliged to pay 50 cents a dozen, or thereabouts, for eggs, when living is so high, the growing of alfalfa is well worthy of your most serious consideration.

This is an experience meeting as well as a meeting for lectures, and what has been the experience of one will no doubt be of assistance to another farmer. I shall be delighted to answer any questions which may be asked.

A Delegate: What time would you advise cutting the alfalfa?

Mr. Grisdale: Alfalfa should be cut when it is just beginning to bloom; when you see a blossom here and there, when there is certainly not more than 10 per cent. of the plants in bloom; that is the time to cut it. Don't make a mistake in letting it stand too long. Alfalfa, if it stands too long, develops, as I stated previously, large, coarse stems; the stems are much more difficult to digest than the leaves, and are the most valuable part of the plant—the leaves. When you are harvesting it, the leaves are more apt to fall off if the plant is allowed to stand too long before being cut. You may cut three times a year; the first cut is usually from 2 to 2½ tons, the next cut about a ton less, and the next cut about half a ton or a ton less, according to the season; we get anywhere from 4 to 4½ tons or 5 tons.

A Delegate: What success will you have in making ensilage of alfalfa?

Mr. Grisdale: Alfalfa can be successfully made into ensilage. We have grown it and made it into ensilage a number of times, with success. I may say this, however, that the loss, when it is made into ensilage, is rather more than when it is made into hay. If the season will at all permit, make it into hay; it is better feed as hay than it is as ensilage; although it can be made into ensilage successfully.

A Delegate: Will it do to make it into ensilage when it gets pretty far advanced, when the weather is wet?

Mr. Grisdale: Yes, and you will get better value from it under these conditions than you will in the other case, because as ensilage it is very easily digested; it cures better in the advanced stage than it does in the earlier stage; therefore, if it is pretty well on in bloom, it is probably better, probably more advisable, to make it into ensilage, rather than make it into hay, if you have sufficient silo capacity.

A Delegate: Is it better to cut it or put it in whole?

Mr. Grisdale: It is better to cut it; but you can put it in whole. If you have a second or third crop coming on at the time that you are cutting your corn for ensilage, an excellent mixture is one or alfalfa and three or four of corn; that will make you such ensilage as will make you smile the smile of satisfaction when you watch your cattle eat it and see the results therefrom.

A Delegate: When sown in the spring by itself and it comes up a fairly good crop in the fall would you cut it in the fall?

Mr. Grisdale: Not as a rule. I would rather not cut it that fall, not harvest it; you might better cut it early in September, leave it lying on the ground.

A Delegate: You said a minute ago about inoculating the soil by taking the land from an alfalfa field; could you not accomplish that much better by taking the culture and inoculating the seed?

Mr. Grisdale: Well, you can do it more cheaply if you have not far to haul your soil for inoculating purposes; but if you have to buy your culture and run the risk of its not being fertilized—many of these cultures are probably all right when they are put on the market, when they leave the laboratory, but frequently they are handled so badly that they lose their inoculating power before they reach the soil and consequently no good results follow. If a man is a bit of a bacteriologist and will take the necessary precautions he might succeed that way, but the chances are rather more than even against his succeeding; while in the case of using inoculated soil from old alfalfa fields, he is almost sure to succeed, unless the soil that he has received as an inoculated sample has dried out, in which case the germ is killed.

A Delegate: We have successfully applied it by taking a 25 cent package of culture from Guelph and reducing that with water and applying it to 100 lbs. of alfalfa seed.

Mr. Grisdale: It can be done, if you do it carefully.

A Delegate: That is very cheap, if we can do it; in other words, we obtained about the same results for 25 cents that you could obtain for $5.00 if you have to haul the land?

Mr. Grisdale: What we do is this: if any man writes in we will send him a bag of alfalfa soil or sufficient for the area that he mentions of inoculated soil, and all it costs him is the freight; the freight upon the soil is not very heavy—probably costs him 25 or 35 cents; he has to go to the station, of course.

A DELEGATE: If the farmer is near the Experimental Farm it is all right.

MR. GRISDALE: If it is within 150 miles it is all right, too.

PROF. ZAVITZ: Just a word or two to supplement which I have previously stated in regard to the yield per acre; I am afraid you might, perhaps, get a wrong impression in regard to the production of alfalfa from the chart which I have before you, because I was showing you the different kinds of alfalfa through severe conditions. Last winter, as you all know, was a very severe winter; this summer an exceptionally severe dry summer for alfalfa production; and I wish to say now that by taking the average at Guelph for the last fourteen years our yield of alfalfa has been just about or a little over five tons of hay per acre. These are productions under severe conditions; that is the reason why we have the results as shown here, because we had a very severe winter last winter. It, however, gave us an opportunity to find out which were the most hardy strains, and which the less hardy strains of alfalfa. The average yield I say per acre for the last fourteen years is about five tons of hay per acre.

A DELEGATE: How are we going to get this hardy strain of seed? We go to the store and buy alfalfa seed; we ask what kind of seed it is and they say "Alfalfa seed," but how are we going to get this hardy seed, that is the question?

PROF. ZAVITZ: There are a number of farmers up in the Western part of the Province that are growing this hardy strain of alfalfa; for instance, I can take you to one farm where I visited last summer, right in the midst of the variegated alfalfa—Messrs. Putman & Sons, of Silverdale Station, Ontario. I mentioned that at Guelph, also, and there went up a great demand to these people from farmers living in the vicinity. They do a great deal of buying and selling of alfalfa seed, and they are right in the midst of that hardy strain of alfalfa. I met them a couple of years ago. I have been down there and went around with them. This summer, Mr. Westlake visited them, and they went around together. They would know more about the variegated alfalfa than any other people I know of down there at the present time.

A DELEGATE: Would Prof. Zavitz tell us if the five tons of alfalfa hay from his farm is four or five tons of cured hay?

PROF. ZAVITZ: Five tons of cured hay per acre; that is in the three cuttings a year. We have about twice as much yield in the first as from the second, and twice as much from the second as from the third.

A DELEGATE: Does Mr. Grisdale recommend sowing alfalfa at 25 pounds to the acre with a nurse crop? Supposing he was sowing it with a nurse crop of oats or barley, how much oats and how much barley would we put in per acre with the alfalfa?

MR. GRISDALE: Well, I should advise growing it with nurse crop with a man who is going to make it a part of his rotation, or is growing it rather extensively; if you are just starting out, I would suggest that you don't use nurse crop the first year; get accustomed to the thing by getting your land into first-class shape, get every condition favorable for its growth. You will find that it is much harder to start than it is to continue. Get your land into prime condition—don't lose sight of the importance of that feature, and don't sow the seed too early. It is time enough to sow the seed in July—in June. If you are going to use nurse crop, after you get well going with this crop, then sow about two bushels of oats or a little less per acre and about a bushel and a half or a little less of barley to get the best results. At the Experimental Farm we make practically no difference in the amount of grain we sow with alfalfa from that which we sow with other crops sown for grass or hay.

THE PRODUCTION OF TIMOTHY AND CLOVER SEED IN THE OTTAWA VALLEY.

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In the limited time at my disposal, I shall deal more particularly with that phase of my subject relating to the production of clover seed. I wish to lay special emphasis on clover seed, because I believe that one of the greatest opportunities that the farmers of Eastern Ontario and Quebec have is in the more extensive growing of clover for pasture, hay, and seed. Not only is clover one of our most profitable crops itself, but in conjunction with live stock it has a remarkable influence in increasing the fertility and improving the mechanical condition of the soil, thus making it more productive for all other crops. So great is this influence that some prominent agriculturists have gone so far as to say that no country where clover cannot be successfully grown can long remain highly productive except through the very liberal application of fertilizers, which is impracticable on a large scale.

We can appreciate the force of this contention more fully when we consider why it is that clover has such a highly beneficial effect on the soil, and this, in a word, is explained by the fact that it is a plant food gatherer instead of consumer, in so far as the element of soil fertility usually deficient is concerned. The farmer's great problem in soil fertility is to convert the elements of nature, particularly nitrogen, into a form available for plant food. In this work clover and other leguminous plants are his chief assistants, for they have the power of drawing on the inexhaustible supply of nitrogen in the air, and, through the bacteria in their root tubercles, converting it into nitrates for the use of the growing plant itself and for succeeding crops. The result is that clover not only does not remove nitrogen from the soil, but actually leaves it so much richer in that element that its beneficial effects can be seen in several succeeding crops. Not only does clover increase the store of available nitrogen in the soil, but it also makes it more friable and in better mechanical condition. The roots penetrate deeply and bring up plant food from the sub-soil, and upon decay they leave channels for the freer circulation of air and water, which is very important, especially in heavy soils.

From this you will readily see why clover is so valuable, or almost indispensable, for soil fertility, apart from the pasture, fodder, or seed produced. Many farmers in the Ottawa Valley are fully alive to the importance of clover; but, on the other hand, the majority of them do not appear to realize its value and do not grow it as extensively as would be to their advantage. One of the principal reasons why more clover is not grown in this district is because of the high cost of seed. During the past few years clover seed has been very expensive and much smaller areas have been seeded, and at a lower rate of seeding, than there otherwise would have been. But in being to that extent dependent upon the clover seed market for the area seeded to clover is where the farmers of Eastern Ontario and Quebec make a big mistake, for, according to well-tried experiments, there is no reason why clover seed should not be more extensively produced in this district. Practically all of the clover seed produced in Canada is grown in that portion of Ontario south and west of a line from Kingston to Georgian Bay. It may be asked why clover seed production should be confined to this particular district, and the question is hard to answer. Apparently it has been assumed that southwestern Ontario is more suitable for clover seed production than the eastern part of the Province of Quebec. Perhaps, under average conditions, that may be true, but it is by no means proven, and during the last few years at least the east has had the advantge.

Some farmers have been experimenting with clover seed production in the Ottawa Valley, and results warrant the contention that this is as good a district as any in Canada for that important branch of agriculture. For several years good crops of first-class clover seed have been grown on the Macdonald College Farm, Ste. Anne de Bellevue, Quebec. This year 24 acres of red clover were saved for seed after a first cutting of 3⅛ tons per acre had been removed for hay. The second crop yielded 2,776 pounds of seed, or at the rate of about two bushels per acre, which, at 20 cents per pound, is $555, or $23 per acre. This seed, a sample of which has been tested at the Seed Laboratory, is free from weed seeds and of such a high quality that it would be very difficult to secure stock as good from the trade at any price. This record is not an exception by any means. In fact, the yield this year is considerably lower than the average, although the price is higher. Equally satisfactory results have been secured by private farmers in different parts of Eastern Ontario, and this year, with the encouragement of the Provincial and Federal Governments, quite a large number of farmers have saved clover for seed in Pontiac and some other counties in Quebec. The threshing returns from these districts have not been received, but there is every prospect of a paying crop.

From the experience so far gained, I think it is a safe assumption that this district is at least fairly well suited to clover seed production, but the methods followed in clover-growing on the average farm are not. There are several features of farming operations which need to be modified considerably before clover seed production, or even clover growing for pasture or hay, will be the success that it might be, and I will try, in the brief time at my disposal, to point out some of these to you to-day.

In the first place, the crop rotation should be shortened so that the land will be seeded to clover oftener. Fields, such as I have seen, bearing the third or even the fourth crop of oats in succsssion are not likely to respond very well to the seeding of clover, and when they do not the owner very often gets discouraged and thinks that buying expensive clover seed is a waste of money. The trouble is likely not with the seed or the climate, but with the management, for clover, perhaps more than any other crop, demands suitable conditions for a start, and one of the conditions is a fairly fertile soil containing plenty of nitrogen and potash. As clover is a nitrogen gatherer it is consequently the best possible preparation for a succeeding crop. For this reason land that is frequently seeded usually responds readily, but that which is seeded only at long intervals is likely to give a poor catch. The main secret, then, in making sure of a good catch of clover each year is: first, to bring the land into a food condition of fertility by good cultivation and the application of barnyard manure and then seed frequently. In some districts excellent results in preparing land for clover have been obtained by sowing other leguminous crops, such as peas and vetches, for the purpose of enriching the soil in nitrogen. On soils that are deficient in available potash sometimes very beneficial results are secured from the use of land plaster or gypsum.

Another mistake that is often made is the sowing of insufficient seed. The average rate of seeding in this district is perhaps three or four pounds of clover seed with about as much timothy seed per acre. This low rate of seeding is almost sure to result in a poor stand of clover with the next year's crop containing too large a proportion of timothy to make the second growth of clover thick enough for a seed crop. Even when a crop is intended for hay or pasture only, but more especially for seed, it will be found good economy to sow from nine to twelve pounds of clover seed with four or five pounds of timothy seed per acre.

A factor which frequently disqualifies a field of clover for profitable seed production in the Ottawa Valley is the fact that it is allowed to stand too long before the first cutting is taken. It seems to be quite a common practice to let meadows stand until the blooming period of timothy is well over, with the result that the clover is too far advanced for the best hay even, and the chances for a good second growth for seed crop are reduced almost to the vanishing point. Even for hay much better results would be secured if the meadows were cut when the clover is in full bloom, and for seed it should be cut even sooner. If you have sufficient clover meadow, it is a good plan to pasture part of it, up to about the middle of June and then run the mower over it with the cutter bar set high to remove the roughage. This allows the second growth to get a good early start, and usually gives a better yield of seed. It has the further advantage of making the seed crop less liable to attack from the clover midge which sometimes does great damage to the later crops.

When growing clover seed for the market or for home use it is of the utmost importance to see that it is as free as possible from weed seeds or its market value will be greatly lowered or entirely destroyed. In order to produce pure seed it is necessary, first to select a well-prepared clean piece of land, preferably following a well-cared for hoed crop. Then sow the cleanest available seed and follow this up by carefully hand-pulling or spudding any weeds that may appear in the seed crop.

I might mention that the Seed Control Act now requires all timothy, alsike, red clover and alfalfa seed sold by seed merchants to be plainly marked with one of the four grades fixed by the Act, viz: Extra No. 1, No. 1, No. 2 and No. 3. Extra No. 1 is hardly a commercial grade as the standard is so high that only an occasional lot of seed reaches it. To grade Extra No. 1, seed must be pure as to kind, clean, sound, of good color, and be absolutely free from the seeds of the weeds classed "noxious" under the Seed Control Act. It may contain a trace of weed seeds of secondary importance, such as Foxtail. No. 1 seed must contain not more than 5 noxious weed seeds per ounce and a total of not more than 100 weed seeds of all kinds per ounce. No. 2 seed may contain 20 noxious weed seeds and a total of 200 weed seeds of all kinds per ounce. No. 3 seed may contain 80 noxious weed seeds and 400 weed seeds of all kinds per ounce. These standards apply to Timothy, Red Clover and Alfalfa seed. With alsike they are the same, only that twice as many noxious weed seeds are allowed in each grade, while the total of all kinds is the same. Any seed coming below the No. 3 standard is prohibited from sale.

These grades make it possible for farmers and retail merchants to buy their seeds more intelligently. Farmers intending to grow clover for seed should buy nothing lower than No. 1, and, if possible, Extra No. 1, for the difference in price will be repaid many times in the higher value of the resulting crop. On some markets there is a spread of $3, between No. 1 and No. 2 seed at the present time, and it should be the aim of every grower to select his seed and weed his crop so that his seed can be made to grade No. 1 if possible, or at least No. 2. The longer the Act is in force the less demand there will be for

No. 3 seed, and the greater spread in price between the higher grades. The farmer who sows dirty seed or tries to grow clover seed on dirty land will soon be without a market, as seed below No. 3 standard cannot be sold in Canada, and our export market for it is fast being cut off.

One of the difficulties which the farmers of this district have to contend with in growing clover seed at the present time—but one which should be soon remedied—is the scarcity of clover hullers. In the Province of Quebec the Provincial Department of Agriculture has encouraged the production of clover seed by purchasing a huller, which is rented to the farmers in districts where a sufficient number has saved seed to make it worth while sending the machine. In Eastern Ontario there are no clover hullers as yet, and it would be difficult for an individual farmer to secure one. But there should be no trouble if a number of farmers in a district would agree to grow seed. At any rate, the Seed Branch will promise you this: If the farmers of any district will club together and save a total of 150 or 200 acres of clover for seed, we will do our best to assist in having a huller brought from Western Ontario to thresh it.

But the lack of a huller need not prevent anyone from growing the seed; for the threshing can be done quite satisfactorily by an ordinary grain thresher specially fitted up. The work is slower and the seed can not be so well hulled and cleaned for market, but this is a matter of comparatively small importance if the seed is for home use. If it is necessary to thresh with an ordinary machine, the work can be done more thoroughly and quickly in cold, frosty weather.

Now just a word or two with regard to timothy seed. During the past two years the price of timothy seed has been so high that there has been a strong temptation to save timothy for seed, and many crops that were originally cut for hay have afterwards been threshed. It should be remembered, however, that the last two years have been very abnormal in the great timothy seed-producing area of the United States, resulting in a small crop of lower quality than usual. When normal conditions return the price will be so much lower that it will not likely pay to grow timothy seed in this district except on land that is too low or is otherwise unsuitable to be brought under the regular crop rotation. It is useless to try to grow timothy seed for the Canadian market on land that is not practically free from weeds. A considerable portion of the timothy seed saved in this district during the last two years has been badly contaminated with Ox-eye Daisy seed, which disqualifies it for the trade. Ordinarily, timothy seed of good quality and almost absolutely free from weed seeds of any kind can be purchased through the trade at a reasonable price, so that there is not the same necessity for farmers to grow their own timothy seed that there is for them to grow clover seed.

I know that this subject has not been dealt with at all exhaustively, but before leaving it I would like briefly to summarize what has been covered in the course of my address:

The fertility of the land would be greatly increased and the general standard of agriculture improved in the Ottawa Valley by the more extensive growing of clover.

One of the most important means of stimulating clover growing, both from the standpoint of the individual farmer and the district as a whole, is the production of seed.

It has been demonstrated that Eastern Ontario and Quebec can produce clover seed successfully, if proper methods are followed.

To accomplish this, a shorter crop rotation should be adopted with clover grown much more frequently.

Twice or three times the amount of seed ordinarily sown should be used.

The first cutting should be taken early, before the clover is in full bloom, or pastured until about the middle of June.

For the production of high-class clover seed, secure the purest obtainable seed, sow it on well-prepared clean land and carefully hand weed the seed crop.

Clover hullers can be secured if a number of farmers club together to save a considerable area of seed. If this can not be arranged, an ordinary thresher may be used.

And in conclusion, under normal conditions it will not likely pay you to save timothy seed except on land that is not suited to the regular crop rotation. There is not the same advantage in growing it as there is in growing clover seed.

A DELEGATE: How much seed would a man have to have, to make it pay to get in a huller in the place of threshing it with the ordinary threshing machine?

MR. EDDY: It would pay you if you had only a small amount if the huller was in your district and could be had. You cannot get a huller to come a long distance unless there is a considerable area saved for seed.

A DELEGATE: Supposing there was a huller there, and it would cost him say the price of the fuel to get him to thresh a couple of loads, would it pay a farmer to do it?

MR. EDDY: If you could get a clover huller for about $5.00 I think it would probably pay you, if you had two or three loads of seed.

A DELEGATE: You think you would get that much extra out of it?

MR. EDDY: Yes, especially if you wanted to market it.

A DELEGATE: What chance is there right here of growing alfalfa seed?

MR. EDDY: There has not been much experimenting along that line. I know of one man who has been trying it, and has got some good results. He has been growing alfalfa for seed, and getting a fair return, but I could not give you the yield or the area.

A DELEGATE: What about buying a clover huller?

MR. EDDY: Mr. Fixter of Macdonald College has had a great deal of experience along this line, perhaps he can give you more definite information.

MR. FIXTER: A fully equipped machine including self-feeder and blower costs about $800 I think. It would save its own price in a short while. There is one point that Mr. Eddy referred to, and that was the Government Huller in the Province of Quebec. I was not aware that they were charging anything at all for the use of these machines; I was given to understand that there was no cost attached to it. In fact, I might say that I used one myself this year, and it cost me nothing.

THE CHAIRMAN (MR. GEO. H. CLARK): You were especially favored, Mr. Fixter.

MR. FIXTER: I don't think so. I think Mr. Eddy will agree with me that if any number of farmers in the Province club together and grow a few acres, they can have the free use of the machine. It may be possible, of course, that they have to pay the freight on the huller.

A Delegate: We applied for it, and we had to pay the freight to get the huller.

A Delegate: I can quite endorse everything that Mr. Eddy has said in regard to growing clover seed; it is one of the best paying crops on the farm.

The Chairman: We should all be interested in clover seed, when the prices are so high this year. I knew of one dealer, who, when he was asked by an agent from the wholesaler from whom he used to buy clover seed with regard to the purchase of some seed, said that he would manage a bag of timothy; he would also try a bag of red clover and a bag of alsike, but that that was really all he could get in his safe; he would not trust it outside.

Mr. Fixter: Don't let anybody stop growing clover seed for the lack of the huller; even with the smallest threshing machine you can thresh clover perfectly. It will take more time, of course, and it will pay you to get in the huller if possible.

The Chairman: The ordinary clover huller is rather a small intricate machine, fitted with double cylinders, one over-shot and one under-shot cylinder. The high price of them is due to the fact that not so many of them are made as the ordinary threshing machine. The price that was mentioned by Mr. Fixter, $800, is for a rather elaborate machine. I think there is one at about $450. I might mention that if there are enough farmers connected with any Farmers' Club and who next year will arrange amongst their neighbors to save from 150 to 200 acres of red clover for seed I think we can undertake to do your negotiating to get a clover huller that is not more than one-third worn transferred from Western Ontario to your district. Let me say this, that if the farmers of Eastern Ontario will get into the way of growing red clover seed, they will then very quickly get into the way of sowing more red clover, and that is what the land needs; it is a great fertilizer for the land, as has been pointed out in Mr. Eddy's address to-day. I don't think any farmer could do better, as a profitable industry, than to undertake the growing of red clover seed. You have not the prolonged drouth that they have in Western Ontario, where large quantities of red clover seed are grown for export. In the United States, where they grow very largely red clover seed, their crop this year was not more than 25 per cent. of the average. Consequently, for both Canada and the United States, we have to sow either less red clover seed this year or import it. A great deal of seed is now being imported, coming from Chile, from France, and from England. In the case of timothy seed, they have had two successive crop failures in the Western States where the bulk of our supply of timothy seed comes from, and that naturally means a great scarcity of the seed and a consequent advance in the price. The Chicago market virtually supplies and controls the world's supply or prices for timothy. Ten years ago we used to say that the Toronto market controlled the world's supply—at least the world's prices for alsike seed. Fully 80 per cent. of the alsike seed grown in the Province of Ontario is exported to Chile, France, Germany, and England. Our alsike crop this year was also pretty short, due to the severe winter, and in part to the very dry weather which prevailed last summer. I advise all you farmers to prepare your land a little better than usual, sow your seed a little thinner than you are commonly recommended, rather than get second or third quality of seed. I would advise your paying a little higher prices and get the No. 1 seed. If you go down to your store to buy clover or timothy or alsike seed, you will find it labelled No. 1 or 2 or 3. No. 3 is a poor quality of seed. If you want to buy clean seed and protect your land from noxious weeds you can get on very well with No. 1 seed. It will be scarcely possible for you to get Extra No. 1 seed, which is pure, because it is not grown extensively; its production is limited.

A DELEGATE: If you buy a machine, of course you get two different machines for these two different prices—$800, and $450.

MR. FIXTER: Yes, the $450 machine is a smaller machine, and is not fitted with a blower and a stacker. If you get a $450 machine, new machine, you will have very excellent results; it is a good machine.

A DELEGATE: What power do you require to run that machine with the huller on?

MR. FIXTER: I would think that a 14 horse power would be sufficient; it is not nearly so large a machine and does not require so much power, as a large threshing machine. It would need a really strong gasoline engine to run it; I would prefer a steam engine of from 14 horse power up.

CARE OF THE PREGNANT MARE.

JOHN GARDHOUSE, HIGHFIELD.

This address was practically a repetition of that given at the Winter Fair in Guelph, which appears on page 61 of this report. In reply to questions Mr. Gardhouse gave some additional information as follows:

A DELEGATE: Mr. Gardhouse, do you consider it advisable to raise fall colts in this climate?

MR. GARDHOUSE: I do. I think, perhaps, in this country we are not raising nearly enough fall colts, not so many as we should. I remember when a boy—that was one of my first experiences—my father had, among other mares, one very valuable one, perhaps the most valuable one he had at that time. In the spring of the year she did not catch with foal, and he bred her in the fall. She dropped a splendid foal in the following fall, and when that foal was two years old, she was quite as good as any of the other foals that were six months older. The mare worked all summer and in the winter time she sucked the foal. In the spring of the year when the foal is weaned, it is ready to go out on to the green grass, which, by the way, is the very best feed that you can possibly get for young colts, after they lose their mother's milk. I think now in this country, where the stabling is such as it is at the present time, where they can be kept fairly warm, that perhaps the farmers would be doing the very best thing they could possibly do, in the raising of colts to turn their attention to the raising of more fall colts than they have been in the habit of doing in the past.

A DELEGATE: At what time do you consider it advisable to have them dropped?

MR. GARDHOUSE: That would depend to a certain extent on the work you wanted the mare to do, and the locality. October is a very good month to have them dropped, or even November is all right, after the fall work is all done and the mares are in the stable. I would strongly recommend, of course, having a good roomy box stall, well lighted, and well bedded. The colt will do fine there all winter if nicely cared for.

A DELEGATE: What is generally the cause of so many of our spring foaled mares losing their foals in the fall?

MR. GARDHOUSE: Largely the very thing that I was just speaking about—extremes. Working them hard, feeding them pretty well, largely on dry food; putting them in a rather dark and dirty stable, in many cases, without very much light, without very much fresh air, and with practically no exercise. She has quit work then, and does not require the same feed as when she is working on the farm every day. I don't think there is anything that will cause abortion like going from one extreme to the other—from hard work and heavy feed cut right off to no work and practically no grain ration. A mare should always be fed well, and fed on good, clean, wholesome food. Of course, I do not say that is always the cause; there are a great many reasons why mares may lose their foals. There is, I might mention, contagious abortion. Perhaps a mare may get a twist or a jerk or even get a fright; all these things, or any of them, might or might not cause it; but I think, speaking generally, there is nothing that causes this trouble like the extremes which I have already alluded to.

A DELEGATE: I am glad to say that I have not, in my experience, had that misfortune, but a great many of my neighbors have, and it seemed to me that this arose very often by taking a mare off the grass that she has been idle on all summer, and putting her right suddenly into the fall work. What is your opinion of that?

MR. GARDHOUSE: Taking her off the grass, when she has been doing nothing, and putting her into hard fall work—that is going to extremes again. You have to avoid all extremes. It might happen in that way. Here is a mare running on grass with nothing but grass. You can readily understand that if you were to start feeding her hard, dry food, and putting her into hard work, the extreme in that sense might cause the trouble. I think, perhaps, it would be just as likely to work that way as the other.

A DELEGATE: In raising a fall colt, would you turn the mare and the foal out for exercise in ordinary weather—weather that is not too severe?

MR. GARDHOUSE: Yes, if the weather is not too severe; they must have exercise.

A DELEGATE: Both of them?

MR. GARDHOUSE: Yes. You cannot develop either the mare's muscles and digestive organs, nor the colt's muscles and digestive organs unless they get plenty of exercise. If the weather is very stormy it is not well to let them out too long, to get chilled through; but we believe in letting them out for water, and probably run out for a short time, according to the weather.

A DELEGATE: Supposing the weather is very stormy, would you let them out for exercise then?

MR. GARDHOUSE: If the days are fine, so that they can run out for a considerable time, without getting chilled through, we would let them out; but if the weather is stormy or rough, as our friend here suggests, we have to act accordingly, and not let them out for so long.

A DELEGATE: Speaking of working the pregnant mare, do you think it is profitable, the way hired help is at the present time, that a farmer can afford to pay hired help to work the pregnant mare?

MR. GARDHOUSE: Yes, I think so. I am inclined to think that the pregnant mare, properly driven and properly cared for, is quite competent of doing all the work on the farm necessary for her to do, provided that there are sufficient horses on the farm to do the work. I do not say that the farmer must not have another team for certain kinds of work, for the road work or for hitching to and hauling loads where there might be twisting or straining, but the ordinary work on the farm, such as plowing, cultivating, harrowing, and that kind of work, can be done just as well with the pregnant mare as with other horses. And the mare will be more apt to raise you a strong, muscular, healthy foal than she otherwise would, doing nothing.

A DELEGATE: Is there any increase in cost in connection with the fall colt compared with the spring colt?

MR. GARDHOUSE: I do not think so. Of course, they will require a little better feed during the winter months while the mare is suckling the foal than she would if she were running idle and not suckling. On the other hand, if you are doing your work in the summer with a pregnant mare, and she is suckling a foal, she will require just a little better attention than she would if she were dry during the summer. I think you gain quite as much on the one hand as you lose on the other,—in fact, I think a trifle more. I am of the opinion that you can raise fall colts just a little cheaper than you can spring colts, because that gets away from the point that our friend here raised in reference to the hired man driving a pregnant mare, because she is in a position then to go right along and work, when she is not suckling.

A DELEGATE: Do you not think that it is harder to get a mare in foal in the fall?

MR. GARDHOUSE: I do. I don't think that you are so apt to get your mares in foal in the fall as you are in the spring of the year; but I think that is largely on account of the condition that the mares are in in the fall of the year; very often the flies have been bad during the summer, the pastures may not all have been good, and you may have worked your mare a little hard all season so that she is not in good condition; her blood is out of sorts, and, therefore, she is not quite as likely to get in foal as mares are in the spring of the year when they are on the grass.

A DELEGATE: Is she not liable to be overheated during the summer.

MR. GARDHOUSE: I don't know that I would want to put it that way, exactly. I think I may say, if the blood is likely to be all out of sorts—too hot—I don't know whether it may be caused by overheating or not. I don't think, however, that any pregnant mare should be driven until she is overheated at any time, so as to cause any bad effects.

A DELEGATE: I have had a little experience with abortion, where in the spring three mares aborted, one following the other, and it all happened in the month of March; they were due about the middle of May. I should think that was a case of contagious abortion. They were in one stable together.

MR. GARDHOUSE: Yes; that probably was a case of contagious abortion, it looks very much like that, if you had three mares abort one after the other, and all in the one stable together. I have heard of some cases in the west, where they have had such experience, out in the ranges, where the mares have been out, but I cannot answer that from practical experience.

A DELEGATE: Do you think that frozen grass has anything to do with it?

MR. GARDHOUSE: That is a very important point. I have a few "Do's" and a few "Dont's" which I intend to give you at the conclusion of my address, and that is one of them. Don't allow them to gorge themselves with any frozen grass or rough dirty food of any kind.

A DELEGATE: Can you tell why it is so hard to get a mare in foal in the fall than in the spring in the west?

MR. GARDHOUSE: I am perfectly frank to admit that I cannot answer that question. I am not from the west. I did not know that it was really the case.

A DELEGATE: It is only about three out nine get in foal.

Mr. Gardhouse: I don't think I can answer that question; I didn't know it was a fact. I don't see why it should be.

A Delegate: What was that question about the Western mares only getting three foals in nine?

Mr. Gardhouse: Our friend asks, why it was so difficult to get a mare in foal in the western country on the ranges—I think that was his question, and our friend here says that about one-third of the mares are about as many as you can get in foal in that country, running on the ranges?

A Delegate: The reason that we notice it in the west is, because the mares are sold here because they won't breed, and they ship them out to the west, and we find out that they are non-breeders after they get there. (Laughter and applause.)

Mr. Gardhouse: There may be something in that, too. I would not wonder at all, because you can readily see that any farmer who has a non-breeder—a mare that will not breed—is going to sell her for what he can get for her, and when the dealers or shippers to the west buy a mare, they perhaps buy her as a worker. They may buy her as a breeder, expecting, of course, that she will breed, and then ship her to the west, and if she is a non-breeder here she no doubt will be a non-breeder there; so that there may be considerable in that.

A Delegate: I have fifteen mares and they were all foaled and bred there, western bred, all with foal.

Mr. Gardhouse: They were bred in the west?

Delegate: Yes, western bred.

A Delegate: Ten bouts a day in a plow in a field half a mile long, and about six quarts of oats at a feed are responsible for a good deal of it.

Mr. Gardhouse: Ten rounds a day in a half-mile field and about 6 quarts of oats at a feed. Well now, any of you who know anything at all about horses understand that that will be a pretty good answer to the question. Mares are not going to do that kind of work and do very much breeding; that is certainly going to extremes. I want to emphasize again the importance of this; that if you are going to get results in raising colts, you certainly must not go to extremes; you must avoid extremes of all kinds; that is, too heavy work and too heavy feeding.

A Delegate: Is there any danger of having a mare too fat?

Mr. Gardhouse: Well, there is a difference of opinion along that line; I am not too sure that there is very much danger of having a mare very much too fat, providing she is getting a fair amount of good, clean, wholesome food, lots of exercise so as to develop the digestive organs and to develop the colt as it is growing. Some mares are very much better keepers than others, and perhaps on less food, and it may be that some mares are kept too fat at times; but I am inclined to think that perhaps there are just as many that are kept a little on the lean side. I would not like to say that very many mares in this country are kept too fat. I believe that some mares are too much pampered. I have no fault to find with their flesh; but I have fault to find with the way they are pampered.

A Delegate: I have heard it said by my neighbors that if you keep a mare too fat is has a tendency to make the colt small.

Mr. Gardhouse: That is pampering again. If you get them out and give them plenty of exercise so that they may develop, I don't think you will have much fault to find in that way. I have seen some mares that have been kept hard at work, at high tension, all their lives, and they have never lost a colt.

A Delegate: What kind of feed do you prefer?

Mr. Gardhouse: Well, as regards feed, I consider that there is nothing better than good, clean, well-cured, mixed hay, oats and bran.

A Delegate: What if you did not have any hay?

Mr. Gardhouse: Well if you have no hay, better not have too many mares. (Laughter and applause.)

A Delegate: How about feeding them on straw?

Mr. Gardhouse: A certain amount of straw is all right.

A Delegate: If you happened to live in a country where they did not grow hay, what then?

Mr. Gardhouse: I don't know, I am sure. You might get straw in a country where you have not got hay.

A Delegate: Plenty of grain in the sheaves; that may work out all right.

Mr. Gardhouse: Where I live we can always grow a certain amount of hay, and we try to cure it pretty well and give them small quantities. A horse is an animal with a small stomach. They don't want too large, bulky food. You want to feed good, clean well-cured hay and a certain amount of straw; perhaps one feed of hay along with straw is all right. We feed straw to our mares and horses all the time; we throw it in the stall and let them pick through it, and the rest goes for bedding.

A Delegate: How about feeding roots to the mare?

Mr. Gardhouse: I believe in giving a few roots about three times a week—every other day. A few just for their evening feed, when you supper up is the best time.

A Delegate: What about feeding ensilage?

Mr. Gardhouse: I have not much use for it for horses; I think you can put it to better use in feeding it to other stock. While I would not suggest that in some cases it is not all right, I never thought that ensilage was the best feed for horses.

A Delegate: When you say there is a difference of opinion, what do you mean? In what respect do people differ?

Mr. Gardhouse: Well, one man says that he has fed it and another says he has not fed it; and one who says that he has fed it claims it was all right, that he has got good results. Let me put it this way, that as far as I am personally concerned, and as far as my experience goes, I don't think that ensilage is the best feed for horses. That is to say, I consider that you can use it to better advantage in feeding it to cattle, hogs, and so forth.

A Delegate: Have you ever fed flax straw?

A.—No; I don't know anything about it.

A Delegate: It has been found to be all right in the west.

Mr. Gardhouse: I dare say; we never grew it; that is, I don't know anything about it.

A Delegate: Would alfalfa after grass cause abortion in mares?

Mr. Gardhouse: I don't think so; no.

A Delegate: Well, I had two mares; I put them on alfalfa after grass, and they both lost a colt the next morning?

Mr. Gardhouse: They had not been used to going on alfalfa before?

A Delegate: No; they had only been on it the day before.

Mr. Gardhouse: Was the alfalfa pretty large?

A Delegate: No.

Mr. Gardhouse: Well, I should not think it would cause the mares to abort. I don't think that was the cause, unless they had perhaps eaten too much and had bloated, or something of that sort—had a little colic. But I don't think that was the cause.

Always disinfect the navel with a solution of carbolic and water. I use a solution of carbolic and water, about 1 to 10. That is a very good disinfectant, and one that is suggested by many in the profession to be a preventive for the navel trouble. I am not so sure in my own mind whether it always works out in practice or not; however, there is no doubt that it is a very good disinfectant, a very good thing to do, and it does not cost much to do it.

A Delegate: Will once bathing it with this solution of carbolic and water, 1 of carbolic and 10 of water, be sufficient?

Mr. Gardhouse: No; it is well to disinfect it a couple of times a day until the navel is healed.

THE THOROUGHBRED AS A SIRE OF HALF-BREDS.

F. C. Grenside, V.S., Guelph.

When I was asked to address you at this meeting, it struck me that there was something to be said upon the question of breeding half-bred horses. I have been away from this country for a good many years. When I lived here before there were a good many half-breds raised in Ontario, and there was a good market for them, but since I have returned I have found that there is a great dearth of good half-bred horses in the country; in fact, it is almost impossible to find them. Therefore, I thought it well to bring this matter to your attention, in order to determine whether it would not be well to give a little more attention to this subject, the production of half-breds.

The title of my address to-day is: "The Thoroughbred as a Sire of Half-breds." Of course we won't talk about the breeding of thoroughbred race horses here at all, from the fact that there is not one farmer in 500 that would even think of going into the business of breeding thoroughbred race horses or runners. We may say that it is not part of the farmer's life to go into that sort of thing, and it is indeed very questionable if he could make it pay were he to go into it. But when it comes to the question of breeding half-breds, that is another matter. By half-breds we mean the breeding of thoroughbred horses to mares other than thoroughbred. This term is generally used. No matter how much thoroughbred blood the mare may have in her veins, the produce of that mare in the thoroughbred sire would be called a half-bred. Supposing you have a mare $\frac{7}{8}$ths bred in thoroughbred blood, and if you mate her with a thoroughbred horse, you produce what would still be called a half-bred. It is more convenient to define it in that way, so that when I speak about half-breds, I don't simply mean the produce of a thoroughbred sire on a cold-blooded mare. The term "thoroughbred" is sometimes misused. I will just refer to that point before going any further. People very often use the term in rather a reckless way. When you say a thoroughbred horse, it means a special breed of horse, it means the English race horse or the English runner; but very frequently it is used in this way in qualifying the breed of the other pedigreed animals. In Hackneys, Clydes, Percherons, and so on, they speak of thoroughbred Percherons, thoroughbred Clydes, thoroughbred Hackneys, thoroughbred trotters, and so on. That is looked upon as incorrect, and it very often leads to confusion. It is not wise to use that qualifying term; what we should use is pure-bred Hackney, pure-bred Clyde, pure-bred Percheron, which does not lead to any confusion. This has been determined to be the best plan to adopt in discussing these different breeds. Now, then, the question arises: How far can the farmer go in the production of half-breds successfully? When you speak about the breeding of light horses you are generally confronted by the statement that it doesn't pay the farmer to breed light horses, and that he cannot do it so successfully as he can raise heavy horses. I quite believe that in a very large measure there is a great deal of truth in this. It requires less knowledge, less horsemanship, less aptitude to raise heavy horses, and they are more easily marketed than light ones. But, on the other hand, there are certain men who have a taste, a natural aptitude for the production, handling and marketing of light horses, and they can make a success of it. There is also a demand for light horses, and they have to be produced by somebody, and they can be produced and marketed at remunerative prices. Consequently, I think it is a subject that is well worthy of our earnest consideration.

Now, as I have said, I think that the use of the thoroughbred sire has been very much neglected. We find that all the large exhibitions, fairs, and so on, give premiums for thoroughbred horses as sires of half-breds. They generally qualify it in that way. I think in this premium list here they do—a thoroughbred sire best calculated to produce half-breds. That shows that the authorities think there is a place and a reason and an object for the production of half-breds and that it should be encouraged. I want to draw your attention to this fact, that whatever reputation has come to Canada as a country for producing light horses has come through the medium of the thoroughbred horse.. We have never attained any reputation as producers of high-speed horses to any extent, or as producers of horses known as high-steppers; we have produced some good ones, a fair percentage, and they have obtained some reputation, but we have attained a greater reputation in this country as producers of half-bred horses. Our horses have gone into various parts of the world and shown successfully and made very enviable reputations as hunters and jumpers and saddle horses. And when we have attained that reputation, I think it is very wise and very important that we should maintain it. And that has all been done through the medium of the thoroughbred sire. Of course, when I say that, I have to give credit to the men who have handled these horses and successfully trained them so that when they went out into other parts of the world—as New York, England, and so on—they have brought back laurels with them. This is, I say, due very largely to the men who have handled them; but you must not lose sight of the fact that they could not have attained this success had they not had the horses to work upon, and it was through the medium of the thoroughbred horses that they were enabled to do this.

Now, then, what is the thoroughbred horse? What attributes, what properties, what qualities has he got that we want to get in our half-bred or ordinary lightbred horses? He has a number of attributes which are very valuable, and which can increase the merit very considerably of half-bred stock. For instance, the thoroughbred horse has a very high nervous organization—possibly the most highly developed nervous organization of any horse that we have, which gives to that animal courage, force, stamina and vim—which of course are valuable qualities to transmit to our ordinary mares. He possesses that to a very marked degree. Another quality the thoroughbred horse has—and which is very valuable in light horses—is elasticity of movement; there is no horse that has the springiness, the elasticity of movement that the thoroughbred horse has; and this he transmits to his progeny, enabling them to stand wear and tear and make a good riding horse, which, without springiness, there is no pleasure in riding him. Another attribute that he possesses is quality. I think you will all agree with me that quality is a very valuable attribute in a horse—I mean that fineness of texture which signifies the possession of quality. The thoroughbred is the quintessence of quality as he possesses this attribute in a higher degree than any other breed, unless it be his progenitors, the warm-blooded Arab, Turk or Barb. Nothing will raise the standard of our light horses more than increasing the attribute of quality, and the best source of it is from the thoroughbred horse. And then, again, we have speed. I think possibly we may speak of the attribute of speed. Now when we are selecting a sire to breed half-bred horses from, the question of speed is one of secondary importance. Almost any thoroughbred horse has got speed enough for the purpose. Of course in hunters, and to some extent in saddlers, it is certainly an advantage to have a certain amount of speed; but, as I say, that quality is of secondary importance when compared with other qualities which I have spoken of. The farmer might say, "I cannot produce hunters and saddlers, and so on, and get top prices for them in the market." That is in a large measure true. You cannot finish them; you have not got the facilities even if you have the aptitude and knowledge, for you have not got the facilities which would enable you to finish them in order to command the highest prices. You have not got to do that, however. If you raise them and get them fairly handy in harness, and have a good sound substantial colt, you can always get a good price for him as a half-bred, and then the man who buys him will finish him and put him into the market and realize his profit upon him. At the Winter Fair at Guelph I heard them discussing the question of the general purpose horse, and there seemed to be no clear definite idea what constituted the best general purpose horse. The question was asked in the meeting there, and nobody seemed to be able to answer it. My opinion is, and my opinion is gained from experience, that the best general purpose horse you could have on the farm is a good half-bred one. You must not breed them too light; breed your mares to a thoroughbred horse of good size. The dams should have substance with bone and with frame, and so on. If you can raise a half-bred horse from 1,150 to 1,250 lbs. you have got one of the strongest and most active animals that you could desire to have as a general purpose horse. He can draw any ordinary load, he can plow in any soil—unless, possibly, the heaviest clay soil—and can drive to market with a good load and bring you back at a good pace. Such horses are active. They are pleasant to handle, and they fill that particular bill, to my mind, better than any other horse that you can raise in order to make a good general purpose horse. Of course you might, with a half-bred trotter or a half-bred coach horse, attain the same results to some extent, but I think you will attain it to a better extent, a greater extent, by the use of the thoroughbred sire. There is a large market for half-breds all over the world; as they are in great demand, at good prices. But the trouble is, that when people breed to the thoroughbred sire they usually use too small a mare. You must not use too small a mare—too weedy a mare—or else you won't raise horses that are of much market value.

In your selection of a thoroughbred sire you must be cautious in getting one of fair bone and substance; you must not breed to a weedy one; this being the chief reason why farmers have not attained better results. Very often in the production of a half-bred there is little discretion shown in the selection either of the sire or of the dam. We have a good many mares in this country that are half-bred Hackneys, coach horses, trotters, and so on, that will weigh anywhere from 1,100 to 1,300, which will make admirable mares to mate with the thoroughbred and raise progeny with merit. Excluding horses bred for speed, the half-bred will bring possibly more on the market than any light horse, and he is useful to the farmer, I think, because he has got sufficient size, substance, and activity to make him a good general purpose horse.

There are a great many things that could be said in connection with this subject, and which might perhaps be better brought out in discussion. Anyone who is interested in the subject who will ask me any questions, I shall be pleased to answer them if I can.

A Delegate: What class of mare would you recommend to breed a thoroughbred horse to produce a first-rate hunter?

Dr. Grenside: I think a horse with a pretty fair amount of substance. I do not mean too cold-blooded. You will get better results if your mare is not cold-blooded. If she has got some good blood in her veins she will cross better with a thoroughbred, providing she has the substance. I have seen splendid results from breeding to Hackneys, and half-bred Hackneys and coach mares of good size. I think I would rather prefer a Hackney or a coach mare as a rule for the production of good half-breds.

A Delegate: You would not have them big enough for general purpose business?

Dr. Grenside: Yes, I think so. What size or what weight do you consider necessary for general purpose horses?

A Delegate: From 1,200 to 1,400 lbs.

Dr. Grenside: What do you consider a light draft horse?

A Delegate: About the same.

Dr. Grenside: A light draft horse should be as light, then, as a general purpose horse according to your idea. What is your impression, if I may ask you the question, of the qualities necessary in a general purpose horse—what should he be able to do?

A Delegate: Drive on the road, plow, and so on.

Dr. Grenside: How fast do you want him to drive?

A Delegate: Is there any general purpose horse?

Dr. Grenside: I think you can approximate a general purpose horse, and I think you can get him as well in that way, or possibly better, than in any other way. You have, of course, got to have a certain amount of warm blood in his veins to make him a good general purpose horse. I have seen, time and time again, an 1,150 or 1,200 lbs. half-bred horse do farm work, and they do it well; I know they can draw a good load, and I know that they can come back from market in good time and without any effort. That is my impression of what constitutes a good general purpose horse. I don't want a small draft horse for a general purpose horse. I would rather have something that it won't hurt to drive—a horse that is active, that has vim and stamina—than I would have a cold-blooded horse, such as a light draft.

A Delegate: One that you could bring into a fair grounds as an exhibit?

Dr. Grenside: It depends on the judges, what they consider constitutes a general purpose horse. They don't seem to agree upon that point. I heard them discuss that at the Winter Fair last year at Guelph, and no two people seemed to agree, and nobody seemed to have a very definite idea as to what did actually constitute a general purpose horse.

A Delegate: Do you think that crossing a thoroughbred sire with a pretty high bred mare is a good thing?

Dr. Grenside: Of course you can get them too high-strung, undoubtedly. I suppose that is what your question means? You have to exercise a little discretion in your selection of the sire in that way, as well as in the mare.

A Delegate: I would rather have a little more cold-blooded horse than one too high-strung for my own use.

Dr. Grenside: I have seen good results from light draft horses bred to thoroughbreds. For saddle purposes I would rather have a little more warm blood. It seems to me that you can get general purpose horses without breeding them to light drafts.

A Delegate: In raising colts, if the mare is carrying another colt, what time would you wean the first one?

Dr. Grenside: About five or six months.

A Delegate: And let them run quite late in the fall if they are fat and doing nothing?

Dr. Grenside: I don't think any harm would result. I think six months, however, is quite long enough to run them together. It is better to encourage the foal to eat a bit, and lead an independent existence after six months. They are apt to get awkward and tricky if they are allowed to run too long with their mothers. I don't think it is necessary.

THE BEEF ANIMAL WHEN IT IS FIT FOR THE BLOCK.

J. H. Grisdale, Director Dominion Experimental Farms, Ottawa.

We have not the animal on the platform here that I had hoped we would have, but Mr. Leask's other animal was so wild that we were afraid to bring it in. However, this is a fairly representative beef animal.

Now the question before us is: When is an animal fit for the block? That point is susceptible of a multitude of interpretations. I think I am quite right when I say a "multitude," because you will hardly get any two butchers to express exactly similar opinions upon the same animal.

There is a great difference of opinion as to what the ready-to-kill steer should really be like. One man may look at it from the amount of waste there is going to be when the animal is too thin; another one, from the amount of surplus fat there is going to be when the animal is what we might call rather too well finished, or what he may term too well finished. What is meant by "to well finished" is a very uncertain quantity. It depends upon the trade to which the butcher is catering. If you take a butcher in a small village, where the population is small and where the demand for first-class cuts may be considered comparatively or relatively small, you will not find him looking for a large carcass at all; he wants something nice and small. While in large cities the opposite is often the case.

Now, as you will observe, we have here an animal, which, when dressed, will give a carcass that would be fit for any market; fit for the best markets of Canada or in the Old Country, where they know good beef when they taste it, and where you can get good beef if you ask for it. What we want in the animal, that is in the carcass, when it is on the block is as large a proportion of what we call the best cuts as it is possible to get. You have all eaten the high-class steaks. We want as large a proportion as possible of these high-class cuts. Now, you who have had experience in killing, you also who have had experience in buying, and thus I include the whole audience, know that certain parts of the animal command a much higher price, and are much more acceptable to the palate than others. When we want a choice roast we do not go into the shoulder here (illustrating); we do not go to the round, but we go to this part that is called the ribs; you can get a loin roast, but it is not usual to use that part of the animal for roasting. When you want a choice steak you do not go to the brisket nor to the flank; you don't go to the lower round; you go here to the loin, and you get your porterhouse, or you go a little further back and you get your sirloin steak. Therefore, an animal that will give out the largest proportion of these best cuts is the animal that will command the highest prices as the most popular for all classes of butchers. Therefore, in deciding as to whether the animal is fit for the block or not, we do not look to see if it is good and thick at the flank, although that is a way we have of judging of finish. We do not look to see if it is well developed in the head, nor do we look at this lower part here. We look along the top and see if he is broad and deep and well covered with a good even layer of flesh, or of what is really the part you can feel—the fat, of course. You can handle an animal most carefully and be deceived as to what is underneath; but you can tell by the consistency of the flesh or the fat that you handle whether he is about right, properly mixed in the proportions between the fat and the red flesh or muscle.

It is very commonly supposed that an animal can be too fat. That is just possible; but it is not at all probable, and almost never the case. We hardly ever get a carcass on the market that is too fat for the best trade. To-morrow you will have an opportunity of seeing some of these carcasses. We cannot promise to bring you one here; it will be downstairs. I have seen some of them, some of the animals which were slaughtered to-day, and you could notice probably an inch and a half—possibly, in some cases almost two inches of fat on the outside of the lean meat. That may seem like waste to the thrifty housewife or to the man or woman who does not care for fat meat, but if that man or woman, or even the housewife is a connoiseur—one who knows good meat when they get it in their mouth—they will unhesitatingly say that this is the meat that makes the appetite, that makes an appetite for itself. To get a little piece of that kind of meat is to create a demand for more. Therefore, you who are producers should consider seriously that side of the thing, as well as the other, and get the animal onto the market as fat as possible. The better we can finish the animal, the more fat we can put on in a given time, the more likely are we to excite the demand for this high-class beef, and although the cost of living has nearly doubled within the last few years as every man knows, still we find that almost every one is willing to give a little bit more if they can get something that is of superior quality. I find it is not generally the consumer that is kicking about the quality of the cuts, and about the high cost from the producer; it is the middleman—the butcher—who is anxious to get the cheapest cuts; he is the man who is kicking about the extra supply of fat; he is the man that is kicking about the high cost of this highly finished animal. The man who likes a good cut—and we are all in this class—is always ready to pay a pretty good price for a right good article; and under such conditions or circumstances I have no hesitation whatever in saying that you would find it advantageous and profitable to feed your animals, your beef animals, and get them as fat as this animal is, and he is, as I say, fit for the best markets we have anywhere.

You will observe, that the title of my address to-day is simply "When is the animal fit for the Block?" and that is what I have been trying to make clear to you. But I feel that I can hardly terminate my remarks without drawing your attention to the importance of having animals of a certain formation brought to the block. In the first place, we want an animal that is well filled down in the round; you can see what I mean by noticing this animal; he carries flesh down to near the hock. He is well finished in the twist and carries muscle on the outside just as well as on the inside: we want an animal that does not slope away at the tail head. If you wish to go downstairs and look at one of those dairy cows you would see they are separated about this point (illustrating), and thin and narrow here all the way down to the hock, whereas a good beef animal spreads out, is round here, right through this point (illustrating); full on the inside and full on the outside. That part of the animal, while not quite so valuable as some of the other parts, is nevertheless a valuable part of the carcass, and a part that is liked by every consumer of good meat. This part between the pin bone and the hock is also of great importance. We do not like to see an animal slack from the hock to the pin. We want to see him well filled up, as it is in there that we get some of our high-class steaks, and not a bad roast, too. Going from the hock bones—which, by the way, should not be too wide, prominent or too coarse—we want the loin well covered and nicely rounded. Any bareness or slackness along this part (illustrating) is very objectionable. And we want it not only full at the middle, but carried well out over the short ribs which should be well covered at this point, as it is here we get the choicest steaks. Coming forward to the ribs we want the same formation. In that part again we want such formation as is well illustrated in this animal before you. Then we come from the top of the back here (illustrating), and come down in almost a straight line, something the same, as a rule, but in a deep animal we require it to be spread out, rounding, and when the rib is of that formation it is sure to be covered with a good layer of muscle, to keep the back up and to carry the digestive organs. This animal is of the formation required, and this formation should be retained right forward to the shoulders, where the same general style should be observed. The shoulders, of course, are not very high-class meat, but still there are some good roasts there, some of the flesh is of superior quality and much better than the lower part of the animal. We want, therefore, a good, broad shoulder, fairly well filled in right at the part immediately behind the shoulder. "But," you say, "you have spoken only of the upper part, except in the class of the round steak or thighs; do you want the lower part of the body at all? Is it of no value?" It is of value, but it is this part that we call "chuck." On this diagram which I have before you, you will see the names of the different parts indicated. The line extending about half-way between the pin and the hock forward composes the hock bones and then the ribs and then the chuck. The chuck is sometimes said to extend right down through the shank and of that lower part, where you see the word "triangle" and "plate." That is the most inferior part of the carcass, the cheapest selling part of the whole animal. The round, of course, sells at a considerably lower price than the loin. I am going to speak with reference to the prices of the different cuts and the value of the different parts to-morrow, so I shall not deal any further with that question at the present time. We want, as I said before—and what I wish to emphasize now—a good development of the animal here, for although it is a cheap part, and although it is of inferior quality, the animal that has not this part of its carcass, this part of the living animal well developed, can never make a decent carcass of beef. The digestive organs must have lots of space and capacity; therefore, you see how essential it is that we have the lower part of the animal well developed, as well as the upper part. The animal to be a good beef animal should be nearly level along the bottom as well as on the top. This animal, you will notice sinks a little in the middle, which is a weakness. It means that the muscles are not quite so well developed at this point, just ahead of the loin, as they should be, and it would mean that he would not probably come out quite as thick as a similar animal otherwise, that was built to hold himself up straight, and which would probably have a thicker layer or muscle or flesh. Now an animal that has a large stomach, that is "paunchy" as we call it, is not to be recommended, as there is too much waste. That is a matter that cannot be controlled by the butcher; he has of course to take the animal as he gets it. It is a matter that is controlled entirely by the breeder, as these peculiarities are sometimes inherited, as well as others that I have mentioned. We are gradually changing the form of our beef animals. An animal like this twenty years ago was very scarce. There was very much more prominence at the hip bones, and they were usually more patchy at the pins. We are gradually narrowing them and forming them to what might be called the "ideal" in the way of the formation of the beef carcass.

SOME PECULIARITIES OF THE WOOL FIBRE.

W. T. RITCH, DEPARTMENT OF AGRICULTURE, OTTAWA.

(*Prepared for publication in the Live Stock Report in place of an Address on the Subject included in the Programme of the Eastern Ontario Live Stock and Poultry Show.*)

DISCOVERY OF THE STRUCTURE.

As early as 1664 Dr. Hooke read a paper before the Royal Society upon the structure of various hairs, but the microscopic power at his command was very limited, and the observations consequently very incorrect. About the year 1690, Leeuwenhock turned his attention to the study of the wool fibre, but although several good specimens appear in his works they are not correct, probably owing to the defects of the primitive instruments at his disposal, as he was a most careful observer. In the year 1742, Henry Baker read a paper on the subject before the Royal Society, and dwelt at considerable length upon the existence of a scaly formation on the wool fibre, but little advance was made until the invention of the compound microscope and its improvement at the beginning of the nineteenth century.

Mr. Youatt, whose work on sheep is well known, claims to have been the first person who really discovered the true nature of the wool fibre. It is quaintly described in his work in the following words: "On the evening of the 7th of February, 1835, there were six scientific gentlemen assembled in my parlor. A fibre was taken from a Merino fleece and placed on the frame to be examined as a transparent object. The power, 300 diameter was used, and the lamp was of the common flat-wick kind. The focus was readily found, as there was no trouble in the adjustment of the microscope and we had a perfect ocular demonstration of the irregularities in the surface of wool—the palpable proof of the cause of one of its most valuable properties—the disposition to felt. The edges were evidently hooked or, more properly serrated; they resembled the teeth of a very fine saw. All these projecting indented edges pointed up in a direction from root to point."

Since Youatt made this discovery, great improvements have been made in microscopes and still greater improvements in photography, so that a perfect knowledge of the structure of the wool fibre is now within the reach of everyone who feels interested in this subject.

Suint and Yolk.

These two terms are more frequently mixed up than any other in connection with woolgrowing. Even wool experts are frequently guilty of using one for the other. Although both come from the same source, they flow through entirely different channels. Both are grease from the sheep, but one nourishes the fibre internally, while the other nourishes it externally, in addition to serving other essential purposes. Suint circulates through the fibre only, quickly evaporates when exuded through the scales, sometimes leaving a residue which becomes a kind of enamel on the surface of the fibre. Yolk oozes from the pores of the skin in the form of perspiration and congeals slowly, often leaving a residue near the surface of the fleece, somewhat resembling the yolk of an egg. A natural, healthy flow of both is necessary for the production of good wool, but an excessive accumulation of yolk reduces the value of the wool when sold in the grease. In Merino sheep, yolk is found in three shades,—brown, salmon and canary. Brown generally denotes the age or advanced stage of congealed yolk, but the presence of canary or primrose-colored yolk has more attraction for the wool expert than a pink skin has for a breeder of mutton sheep. Salmon-colored yolk usually indicates less density and a coarser fibre. When washing a sheep before shearing, the eradication of dirty and congealed yolk is necessary, but severe washing disturbs the liquid or oily yolk at the roots, and also the suint in the fibres and is, therefore, detrimental to the wool when marketed. Broadly speaking, yolk is the common term used by sheepbreeders and others for every description of grease in wool, while suint is more a technical term.

Curl in Wool Fibres.

The crimp, or wavy and curly nature of the wool fibre is one of the peculiarities which distinguish it from hair. Numerous theories are advanced in explanation of this peculiarity, but many of these are contradictory and few are considered satisfactory.

In 1857, Mr. N. Burgess, then a recognized authority on the structure of the wool fibre, read a paper before the Queckett Microscopical Club, and gave this explanation:—"I am of the opinion with respect to the growth of wool, that as soon as the point of the fibre has protruded through the skin of the animal, that a series of growths take place, a small part of the epidermis is converted into wool, and then a rest ensues. One side grows faster than another, and hence the curly form of the fire. When another growth takes place another ring is added, the new growth pushing up the hair from below and so adding to its length, straightness and girth of the joints, and possibly with a variation in the thickness of the cylindrical portion of the fibre."

Professor Bowman, however, does not consider this a correct explanation, as the epidermis is not converted into wool, because the fibre is formed within the hair follicle before its protrusion out of the skin, although the unequal contraction of the various constituent parts of the hair, as the cells become more consolidated after leaving the skin, will account for the phenomena. He says that the cells which are to constitute the fibre are large and plastic within the lower part of the follicle, and become more consolidated as the fibre is pushed upwards. The cells which constitute the cortical part becoming elongated by the pressure to which they are subjected by the shrinking in of the outer cells. These outer cells shrink till they completely collapse, and thus form the epidermal plates, although they probably retain the laminated structure, and are capable of expanding again when subjected to variations in pressure, moisture, and temperature; and, as they shrink in their gelatinous nature enables them to adhere together till they form a solid epidermal layer which tightly binds the constituent cells of the cortical part. Unequal shrinking of this ring would give a tendency to curl.

There is no doubt however, but that the curl in wool is a most valuable property, and from whatever cause it arises it seems to increase or diminish just as the finer character of the wool does. The coarser wools exhibit the curl least, and the finest most. The curl in Down wools is somewhat crimpy, while the curl of long wools is more wavy.

A comparison of the number of curls or waves to the inch in a few wools, may possibly be interesting:—

Wool.	*Curls per inch.*
Australian Merino	24 to 30
Southdown and Ryeland	13 to 18
Radnor	12 to 16
Shropshire	11 to 15
Gritstone	11 to 14
Romney Marsh	8 to 12
Roscommon	7 to 11
Leicester	6 to 10
Lincoln and Cotswold	3 to 5
South Down	2 to 4

GREY FIBRES.

Ashen-grey fibres are often found in the fleeces of the fine wooled breeds. They must not be mistaken for black or brown fibres, often found in the neck ruff of black faced Down sheep. It is a true wool fibre in every sense of the term, and the grey tint is so light that it is not readily noticed in greasy wool. Wool buyers, however, have a keen eye for these grey fibres and seldom fail to notice them during their examination of samples previous to the auction sale. When the wool is scoured, grey fibres are seen distinctly but they are too numerous and too troublesome to pick out, therefore, the wool must either be specially treated, or used for dyeing dark shades. When wool containing some of these grey fibres is required for dyeing in light delicate shades, it is put through a slight bleaching process. The bleaches usually employed are:—Bisulphite of Soda, Ammonia, Permanganate, Hydrogen, Peroxide, etc. This is invariably successful but it means extra cost in production, consequently keen buyers seldom pay the full market price for wool containing grey fibres.

Tobacco dips have a tendency to stain the wool and that is one of the chief reasons for their unpopularity and limited use at present. All tobacco-stained wool has to be treated with the same bleaching chemicals, therefore, keen buyers never pay the full market price for wool showing traces of this stain.

Compared with diseased fibres and kemps, ashen-grey fibres are of slight importance, and they are less frequent in mutton sheep than Merinos and cross-breds. There are several causes for grey fibres, but the chief one is careless breeding. In mutton sheep, careless breeding may be said to be the only cause, therefore, we may put this down to grade ewes as a rule, and more especially to the use of the scrub ram.

Cots.

Under certain conditions, wool has a tendency to felt on the back of the sheep and from what are known as "cots," which are nothing more than a tangled mass of fibres. These are a source of annoyance and loss both to the farmer and the manufacturer, as they deteriorate the value of the wool, and have to be removed in the process of sorting. The cause of this cotting is somewhat obscure, and varies much, both in different sheep and different seasons. It is generally found that there is an absence of suint amongst the cotty mass as compared with free fibres, but whether this is a cause or an effect is a point disputed by many of the best authorities on this subject. The tangling may arise from want of lubrication of the fibres, or the thickness of the felt may hinder the free discharge of yolk from the skin. The fact that this tendency varies much in individual sheep, may arise from individual action as all sheep do not behave in the same manner when suffering from the same discomfort. Restlessness and rubbing or rolling when lying down would cause the fibres to be thrown across each other in all directions, and with an insufficient supply of suint they would readily become entangled and matted. The restlessness on the part of the sheep which produces this matted condition of the fleece, may arise from several causes, such as an unhealthy condition of the blood or the painful itching caused by lice or other parasites. Close confinement in dark barns and too much heat-producing foods will also cause cotting.

When heavy coal oil dips are used for sheep with matted fleeces, this condition is not improved but often becomes worse. The partially matted locks cling together, or lie closer, preventing the roots from having free ventilation, while the natural heat of the animal and the weight of the body when resting, causes further matting. Some coal oil dips irritate the skin for fully fifteen minutes after dipping, causing the young sheep, especially, to be more restless, and more inclined to rub than before.

Whenever a fleece has the least tendency to "cot" or "mat" the first thing to be done is to use an arsenic and sulphur dip, which will in all cases cure almost any external evil on a sheep likely to cause a cotted fleece. In less than a week you will observe a wonderful improvement in the wool. If the sheep is still restless and inclined to rub the day after using this dip, you may be sure that it is suffering from some *internal* complaint, most probably an unhealthy condition of the blood.

When a fleece is once cotted, no dip will disentangle the felted parts, but a fresh growth of healthy wool will immediately begin after dipping. The cotted portions should be clipped off as early as possible, providing there is a sufficient covering of wool left to protect the sheep from cold.

Leicester, Lincoln and Cotswold fleeces are most liable to cot. Down fleeces seldom or never cot, even when the sheep suffer from the same discomfort which causes it in the long-wooled breeds. Very often, Down sheep, when suffering from the same trouble which causes "cotting" or a felting tendency in long-wooled breeds, will lose portions of their wool or become badly covered and even quite bare on the belly. Flockmasters noticing this unfortunate condition may rest assured that it is high time for them to give more attention to dipping and variation in diet.

KEMPS.

Notwithstanding the fact that there are millions of wool fibres on one sheep, no two fibres are exactly alike when examined with a powerful microscope. Each hair has its own individual characteristic formation and some slight variation in the number of imbricated scales. It is not surprising, therefore, that the mechanical structure of some fibres may, under certain circumstances, exhibit peculiar variations from the normal type. Although general conformity prevails, such erratic formations only serve to show how little there is in any organic structure which can be looked upon as fixed and invariable. These variations may occur in many of the separate parts of which the wool fibre is composed. Sometimes these irregularities occur in the outer or epithelial layer of the fibre, as there are generally great variations in the size and arrangements of the horny plates which form the outer covering. Very often there are more of these plates being consolidated into one, until there is a considerable length of the fibre entirely destitute of the imbricated scales, which are, under normal conditions, such a distinctive feature.

This part of the fibre usually appears like an ivory ring or ferrule on the otherwise scaly stem. In most cases this continuity of the outer plates does not appear to be dependent upon the inner structure of the fibre, because that, when examined by transmitted light, remains the same, and the inner cells and medulla are quite visible. These deformed fibres are what are generally known as "flat kemps." They are always difficult to dye, but treated with care, the difficulty may occasionally be overcome, as the central part of the hair is usually pervious to dye stuffs. Sometimes the charge is more radical, and the whole substance of the fibre assumes a more dense appearance until the cellular character of the cortical part is entirely obliterated, and the fibre resembles an ivory rod, without any internal structure being visible. "Kempy wool" is a constant source of annoyance to the spinner and manufacturer, because such fibres not only have no felting property, and thus weaken the tenacity of the yarn, but they always resist the action of reagents which are used in dyeing. For this reason they generally remain uncolored and spoil the appearance of the surface of the fabric. Even when the dye does take some effect it is seldom the same tint and is never indelible, therefore, dyers are sometimes blamed when the fault is really the presence of kempy fibres in the wool.

Kempy fibres are less common in the more cultivated breeds of sheep than in the wilder or more neglected breds. Pure bred sheep are generally free from "kemps" unless there is persistent inbreeding. In crosses between coarse long wools and Downs, kemps are frequently found in the neck near the head, and also in the breech, while they are always more or less present in mongrel breeds. In some parts of Russia and in many parts of Asia where the flocks are semi-wild, and no attention is given to the selection of rams, kemps are more or less present in almost every fleece. When kemps occur in the fleeces of cultivated sheep they are chiefly confined to the neck near the head, and the short wool of the legs near the body. It is estimated by a reliable authority that an average kemp is about three times the diameter, and fully one-third the length of the full grown, true fibres among which it grows.

Every authority on wool is firmly convinced that the frequent occurrence of kempy fibres in the wool of cultivated sheep is mainly due to the use of culled rams and more especially scrub rams. The use of scrub rams in any district not only produces objectionable and unprofitable wool to the farmers who use such rams, but it also spoils the reputation and market value of the good wool in that particular locality.

HOUSING PIGS.

D. D. Gray. Foreman, Experimental Farm, Ottawa.

I have a few charts here, but before saying anything about them I wish to make a few remarks by way of introduction.

The pig, with its peculiarities, demands a building especially fitted to suit him. He will stand a great deal of cold if other conditions are right. On the other hand, he will shiver if exposed to any draft or if housed in damp, cold quarters. He will do well in a single-board cabin if it is well bedded and kept dry; he will sicken and die in a warmly-built house, with poor ventilation. The hog does not seem able to adapt himself or develop the ability to withstand the treatment given to many of our domestic animals, most of which can be shut up and endure to a large degree the treatment given to them in the way of warm, stuffy pens. I don't think there is any domestic animal we have that can find so many ways or devise so many plans to die during the winter as the hog can if the conditions under which he is housed are not suited to him. In a suitable environment he can endure a great deal without being attacked by disease. The requirements for the pen for the pig is: plenty of air, light, and a dry nest to sleep in; protection from the wind and the weather, and if given these he will thrive and do well.

I have found from my experience at home on the farm, before coming to Ottawa, and also on the Experimental Farm here, that the conditions under which he should be housed vary a great deal both with the age of the animal and the purpose in view. In the summer time both old and young pigs will do equally well outside, if protected from the heat of the sun, or given a shade of some kind, or even a building with the doors and windows open; a small run or pasture outside with a cabin to lie in, or even a shade built up on posts, is an excellent plan. This method we follow at the farm in the summer all the time, and I may say that the less housing given in the summer time the better. However, it is in the winter that the trouble generally begins, when we get the pig into his winter quarters. And here, again, the age of the animal and the purpose in view has to be taken into consideration in the way we treat the hogs. It has been proven beyond all doubt—at least to my mind—that the brood sow that is housed outside during the winter and given a run with a cabin to lie in, does better and gives better results than being shut up in warm pens. On the other hand, a sow with a litter—the small pig, say from eight weeks up to three or four months—and the feeder has to be kept warm, and it is with these that the most trouble will be experienced. When you get them into winter quarters you will find all sorts of things happen. Of course a man who keeps only two or three or three or four hogs during the winter would not experience the same degree of difficulty as those who are in that particular business to a larger extent; he might not find trouble so readily as a farmer who has a large number. The fact remains, however, that he will find all sorts of things will happen if he does not house them right, as we have found at the farm.

Now the requisites of a good hog-house in the winter time are warmth, light, pure air, and good ventilation, and yet we should have it so that it will be able to withstand our severe winter climate. It is where a great deal of the trouble lies. It takes more than ordinary intelligence to be able to get all these requisites into one building. We have tried all sorts of ways of keeping a piggery dry, and after experimenting for one whole winter we built a piggery at the Experimental Farm which has given us entire satisfaction so far with the young pig; that is, anything ranging say from eight weeks up to three or four months. With a sow and litter we have not tried it enough to be just sure where we are at, but so far as we have tried it, it has been quite satisfactory. I have not time to say anything further now, so will just explain these charts to you.

Mr. Gray then explained the charts to the audience, showing different methods of pig pens built and used on the Experimental Farm at Ottawa.

A Delegate: Can that ventilation—that air—be taken up in any other way than from the centre of the building?

Mr. Gray: Yes; so long as you bring your air up from the bottom, it can come up either side; not necessarily in the centre. We have it in our main cattle barn a little to the side. We have a 14 ft. floor in the middle of the barn, and the ventilation comes up at the side. It can be taken up any way so long as you get the right amount of circulation, but of course by having it in the centre, with our inlets on the outside, we get an even circulation of air.

A Delegate: How about that method in a cow stable?

Mr. Gray: You should have it at the side.

A Delegate: Have a shaft running up the side?

Mr. Gray: Yes. So long as you have it high enough to clear the roof, it will draw. If you have not, it will only draw from one side when the wind is coming that way. If the wind is coming in an opposite direction the air is more apt to go down than come up. In our main barn it comes up at the side partly, and then goes up to the purlin and over to the centre at the top. It will work with a bend, like an elbow, just like that (illustrating with arm). When it is coming up the side of that roof there, or up here (illustrating on chart) and across that way to the centre you can bring it right up there and take it across from here over to the centre, and you get a better circulation because it catches the wind then from every direction.

A Delegate: Will a shaft work properly at the side to draw all the foul air out from below?

Mr. Gray: Not as well as in the centre, but it will work. You can readily understand that if we had a shaft there (illustrating on chart) and had to bring it from this side, the air would not be as evenly distributed as when coming from both sides.

A Delegate: Could you profitably put one on each side?

Mr. Gray: Not so well; it will work though.

Mr. Grisdale: My experience is that so long as you don't go too far from the centre it is all right; but if you went right to the wall it would not be very satisfactory; if, for any reason, it is necessary to be some distance from the centre, there should be no trouble; if you went right over to the wall the danger of the thing working satisfactorily is considerably increased. Better have it as near the centre as you can get conveniently.

A Delegate: How many shafts would you require, outside shafts or inlets in a building 75 ft. long?

Mr. Gray: Three would be plenty.

A Delegate: And how many inlets?

A.—Well, it stands to reason that the more inlets you can get the better, the ventilation. We have an inlet in every pen, so that it gives you an even distribution of air. We have it coming right through the wall. It does not make any difference as to what kind of an inlet you have, as long as you get in at the bottom, the air will work through the top, it circulates.

Mr. Grisdale: If you have an old building with a cement or a stone foundation, and you don't want to work in the stone, you can bring it through the wall, the wooden wall above the stone, or just punch a hole at the floor level, say 6 x 8 or 6 x 10 or 12, which ever size you like, and protect the outside with a little bit of shelter; make a kind of roof to keep the snow from blowing in when the air comes in. Never let it blow right along the floor, put a board in front of it about six or eight inches from the wall to send the air upwards, you see. Make like a little box in front to drive the air up, and that is just as good as coming from the ground.

Mr. Gray: In working a system of ventilation always keep the outlets open. Put a damper here, for instance (illustrating, close the damper here, to prevent the snow coming down; you can shut them, but these are always open. You all know what kind of weather we had last week; we had to shut all the inlets to keep the piggery warm enough. About a foot out from the wall and ceiling was full of frost, and when it got a little warmer it started to melt and we opened the inlets and inside of two hours it was dry, the moisture was all gone.

Mr. Grisdale: We have tried this system in our horse and cow barns and piggery with perfect satisfaction in all three cases. By "perfect satisfaction" I mean they are always dry and sweet-smelling.

Mr. Gray: It would pay any of you gentlemen to come out to the farm.

A Delegate: How would it work on a stone wall, that system of ventilation --a stone foundation?

Mr. Gray: It does not make any difference so long as you get the air into the inside; it makes no difference at all what your foundation is.

A Delegate: You understand that stone has a tendency to be damp?

Mr. Grisdale: You must have a decently constructed wall if you want to keep it dry. If a wall is constructed of big stones that go right through, you never can keep it dry if you had all the ventilation in the world; you want to have air space or lime to keep it dry. A good system to prevent that is this: take two boards and put papers between them; take two boards and nail them on to a 2 x 4 studding, just have a 4-inch air space, and put a paper outside and inside and leave that air space, and you can keep it dry quite easily. Put the two boards together and you cannot keep it dry; there is the difficulty in making a wall. This piggery has only two boards in the walls and is perfectly dry.

Mr. Gray: Yes, a 6-inch studding in this piggery, one board outside and one inside, with the paper. Have the papers on the inside and outside also. We are getting out bulletins, including the plans of this piggery and a full description of it, and we shall be very glad to send it to anyone who desires them. It is not out yet, but it is getting ready for the press. We can, however, send you blue prints at once if you desire them.

POULTRY ON THE FARM.

GEO. ROBERTSON, OTTAWA, PRESIDENT POULTRY ASSOCIATION OF EASTERN ONTARIO.

The subject upon which I shall address you for a short time this morning, "Poultry on the Farm," is one which has received a great deal of attention and discussion, and with the increased and growing demand for new-laid eggs and high-class poultry it must receive even more attention in the next few years than it has in the past. There is practically not a farm, in the East at any rate, upon which poultry of some kind is not kept, but, even amongst those who keep poultry, we find a great many who believe that poultry does not pay. This is more noticeable amongst the farmers than amongst the farmers' wives, for the latter know better. They realize that if it were not for the profit they make out of their chickens many of the little luxuries they have in the household would be absent. However, it is not my intention this morning to bring forward arguments to show that poultry does pay. I am just going to simply make one statement in that regard, and that is, that poultry kept under proper conditions, properly handled and properly cared for, will pay, and pay just as well as anything else on the farm. Now, there are certain things necessary to have poultry do well. In the first place they must be properly housed, properly fed and cared for and they must also be properly bred—the last is not of the least importance. Now, the question may arise, what is proper housing? Is it necessary to have an expensively built house, finished in the finest manner, or will a cheaper house answer the purpose? In the past there has been a great amount of money sunk in expensive houses—money that simply has been wasted. Of course, if you want fine buildings, and everything finished up nicely, you may have them; but the hens will not lay any better in a house of that description than they will in a lower cost house. It is generally with the more expensive houses that the greater mistakes are made. Some years ago I built a house 100 ft. long and 12 ft. wide; ventilation was receiving a great deal of attention and discussion at that time, and I installed what is known as the "King" system of ventilation—probably most of you live stock men have read more or less of that particular system of ventilation. It consists of an intake pipe that begins down near the ground, runs up the outside of the building and enters at the ceiling, so that the fresh air, before striking the birds, coming in at the top of the building, is moderated, the chill is taken from it before it comes to the floor. The outlet starts within a few inches of the floor, runs up through the roof so that the foul air sinking to the floor is sucked up through the outlet, and this creates a current of air through the house. I don't know how it works in stables—I never had it installed there. It seems to be very favorably commented upon in all the leading papers, and in theory it seems perfect, but in actual practice in a poultry house it is not a success. Now in this 100 ft. house I built, I put in ventilators every 12 ft.; that is, I would have an outlet and then 6 ft. further on I would have an intake, so that every six feet I had either an outlet or an intake pipe. What was the result? During the cold weather—a prolonged cold snap—the frost would collect on the walls and roof, and the next soft spell that would come, it would melt and we had a house that was damp all the time. To get over that we used to open the windows, but windows in this country are not very easy to open during the cold weather—you have a soft spell and the water runs down around the window and freezes solid—and I broke glass continually trying to get the windows open when they were frozen. By opening the windows, although it improved conditions greatly, it still left the house damp. Now in that house I took every second window out and put cotton over it; that is, in every 12 foot pen (my pens are divided 12 x 12), there is one glass window and there is a cotton screen, about 3½ or 4 feet; that is placed there simply with buttons, so that it can be removed at any time. In the summer these screens are taken out altogether, making the house practically an open-front house. Since fixing the house in that manner it has improved matters greatly; the birds are in better condition and the house is dry. I am also using colony houses; most of these houses are 10 x 12, the front facing the south, just one sloping roof I am using. In the front of the building there is one large cotton window and one large glass window. These houses have proved very satisfactory, the house always being dry. Of course, even with having that cotton there I use a window which slides, and during all fine weather that window is kept wide open, keeping the birds as much as possible in absolutely open air. I have found this house very satisfactory. Now there are a great many people who think it is absolutely necessary to have a warm house to have hens lay. Up at the Guelph Agricultural College Prof. Graham has been experimenting with open-front houses. This is a house (showing model) that he calls his "Fool-proof" house. This, you will observe, is the front here, facing the south; this is the door; in the opposite side is the large window, reaching almost to the floor. For cleaning purposes that makes it very convenient, because you can clean right out through the door or window; back your cart up to the opening and load right into it. Now where they use cotton frames, very often if you neglect to open them during the day time, when they are facing the south, when the heat of the sun comes upon them they heat up very rapidly and the result is that the birds get over-heated in the day time—at least they are not over-heated at that time, but there is too big a contrast between the heat of the house during the warm part of the day and the temperature of the house at night. Therefore, you will very often have trouble if you do not pay close attention to your window screens, opening and closing them at the proper times. Mr. Graham's house is self-regulating in that respect. That is the reason he calls it his "Fool-proof" house. This front part of the house is 2½ or 3 feet high, with merely a poultry netting over the front. In the actual house he uses small mesh poultry netting; that house is open that way all the year round. The birds roost in the back. A great many people cannot get used to the idea that poultry will do well in houses of this type. On different occasions at Guelph I have gone through Mr. Graham's houses, and invariably I found the birds in houses of this kind in first-class condition, and busy. They are laying well and looking perfectly happy and healthy. I have not, however, used a house of this class myself. I cannot get used to the idea that snow will not blow in more or less; but Mr. Graham assures me that it never blows in more than a couple of feet at the most. This house is made 20 x 20, and he generally puts a flock of 100 hens in there. Down at Macdonald College the type of house used there is a 10 x 12, colony house. They go in almost altogether for colony houses there. Mr. Elford, who has been manager at the college, never believed very much in cotton fronts; he did not use cotton fronts down there at all; he simply had a large window in the south side of the house, a sliding window which he kept open practically all the time, except at night or during the very stormy weather. To allow for ventilation during stormy weather the house, instead of having a glass sliding window, simply had for a ceiling boards placed about an inch apart, and above these there was about a foot or 18 inches of straw. In the peak of the roof, at the end here, there is a small door, about two feet square. Now when the house is closed up that door is thrown open so that it allows of a continual change of air up through the straw without draft; the straw breaks the strong current and thus prevents a draft and at the same time keeps a perfectly dry house. A few years ago, when I was doing my fall judging I did not have anyone to take complete charge of my poultry, and I did not get them into their winter quarters before leaving, and on returning the cold weather had set in and my chickens were out in the colony houses; that is a small colony house about 3½ x 6 feet long, that I use for the roosting chicks. We had had quite a heavy snow storm, and when I got back the chickens were in these houses and in rather a bad shape. Quite a few of them had colds, and were running at the nose. I immediately started to work and got my winter quarters in order, and began to cull out the birds. I took all my best birds and put them into my long, closed house; all the culls and the birds that showed any signs of cold I took and put into a building I had between a cow stable and a granary, the back of which was close boarded with 3-ply lumber, with paper between, so that it left the front of the building the only side where there was any exposure; practically the whole front was open; I just placed cotton screens there and at the side of these screens were holes large enough to throw a cat through. I said to myself, I am going to test out this cotton front system in this country—that is quite a few years ago. However, I placed the birds in there, and began treatment for their colds. I noticed a change right at once. From the time the birds went in there they began to improve. The result was that in the spring when the birds came out at breeding season the ones that I had taken out as my culled stock, that were just starting in the first stages of roup, were in splendid condition. The birds that were in the other house, while they were all healthy, did not have the same appearance as the ones in the cotton front house at all. These birds that were placed in there without any covering for the roosts at all, were simply in one corner of that practically open shed, and they came through the winter in splendid shape and laid, quite a few of them, quite well, in view of the fact that they were the ones that I had culled. After that I was convinced that cotton front houses in this country were a success. Since that time I am constructing all my buildings on that plan, using a large amount of cotton in the front of the houses. This is best used on houses which have a southern exposure. In this house it was not the best exposure, the exposure was a western one, subject to high winds, but, as I say, in spite of all this the birds came through the winter in splendid shape. I don't know that it is necessary, at present, to say anything further with regard to the housing. Now, there are certain requirements that are necessary in a good house. You must have light, dryness, fresh air, without drafts, the maximum amount of floor space, combined with ease of operation. Get these features into the house, no matter how cheaply your house is built. You do not need dressed lumber; so long as you get these features in your house it will be a success. Of course from an investment standpoint the cheaper you can have your house the better. I know people with taste always like to have things finished up nicely, but so far as profit is concerned it is not at all necessary; that is a matter for your own inclination.

Now a few words with regard to the feeding of fowl: I like wheat as the basis. Of course there are certain things that are absolutely necessary in the food for fowl; you must have some form of grit where the birds can get it at all times. We must have green food in some shape. We must have some form of meat food; we must have good wholesome grain, and lots of it. As I stated before, I like wheat for the main grain, but it really does not matter—it will depend altogether on the price of grain in the particular locality in which you live just what you will use. Of course in breeding for exhibition purposes—and I am largely engaged in that end of the business—in breeding white birds I do not use very much yellow corn, so I use wheat largely as a foundation of my rations. In these days some people sit down and take a pencil and paper and endeavor to get at the chemical analysis of foods, figure out these things. To a certain extent that is all very well, but a man of ordinary intelligence and common sense will go to work and feed his hens all the food that he thinks is necessary and accomplish a great deal more than the man who is studying out of a book the chemical analysis of foods and goes entirely by rule. I think the practical man who takes his foods and uses common-sense in feeding will always make a great deal better feeder than the so-called scientific feeder. It will depend altogether on the convenience what time to feed your mashes or your grain food. When I used to feed wet mash I always fed it at noon, because it was more convenient for me to do so; most people feed in the morning. At the present time I am not using a wet mash at all; that is, I am not using a moist mash; I am using a dry mash, the hopper system; that is I take the ground grains and mix them just as if I were going to make a wet mash, and put it into the hoppers and let the fowl have access to the dry mash at all times. I always feed enough grain at night so that when the fowl come off the roosts in the morning they will find enough grain in the litter to keep them busy. I always like to have grain there when they get off the roosts in the morning; then they can get right to work and work for their breakfast. Mr. Graham, at Guelph, is using a great deal of crushed oats in his hopper feed—almost entirely. Down at Macdonald College Mr. Elford was using simply bran, dry bran, in the hoppers. He had it where the fowl could get at it at all times. The advantage of keeping a dry mash before fowl is this, that they will not eat the quantity of it at any one time that they will of a wet mash, but you can feed lightly; you can feed a flock a little grain and still be sure that they will always get enough to eat, because if they are not getting enough whole grain they will take advantage of the hoppers. For meat foods, probably the most convenient, cheapest and best food that can be had on the farm is milk—sour milk. I have personally great faith in it, especially for raising young chickens. I use just as much as I can possibly get for my chickens, keep it before them all the time; and for laying hens there is no better food than sour milk. I say sour milk, because the idea of having it sour is that if you are feeding sweet milk, especially in summer time, it is impossible to keep it sweet for any length of time. Where you are giving birds, especially chickens, sweet milk one day and sour milk the next day, it is going to cause bowel trouble. If you give them the sour milk all the time you can be sure of what they are getting, and you will have no difficulty with bowel trouble at all. It will agree perfectly with the birds. If you are not in a position where you can get this milk get some substitute, because this meat food must be had. Where you can get green cut bones, or beef scrap, it is a splendid thing to feed to them. Feed of that kind must be given them in more or less quantities during the winter time.

For green food I don't think there is anything equally convenient as sugar beets or mangels; if you cannot get either mangels or sugar beets, of course turnips will do; but I do not like them as well as the other two foods I have mentioned. They are much harder for the birds to work upon, and I don't think they are nearly as fond of them as they are of mangels. If you take a mangel either whole or slit down the centre and throw it into a flock of hens you will be surprised to see how quickly they will eat it; they will have that mangel cleaned out in a very short time. They are very fond of them. A feed that is being used largely now by breeders is sprouted oats. I don't think there is anything better for breeding stock than sprouted oats. That is, take the oats and dampen them and keep them in a warm place until the sprouts become anywhere from one to two inches long and then feed it to the fowl. They are very fond of it. Of course a great many farmers would not be bothered with this method of feeding, and it does take up a good deal of time; on the other hand, mangles are a food that are easily grown, and most farmers have them, so that I think they are perhaps the handiest and best feed for the farmer to use. Clover hay also I have found to be a very good thing for the fowl. Just take and give them a bunch of clover hay and it will be surprising the amount of that they will eat. Some people moisten it with boiling water, and give it in that way. If you put a bunch of clover hay where they can can have access to it you will be surprised at the quantity of clover leaves that they will eat. For the grain foods, wheat, I say, I like as the foundation. It largely depends on the price of this grain in your locality whether you can afford to feed it. Barley, oats, buck-wheat, corn; they are all good, but I would not advise anyone to use one to the exclusion of the others. I always like variety in my grain rations; sometimes I have a little corn, sometimes some buckwheat; but I always try to have mixed grain rations. I do not mix my grain, however, so that the fowl may take their choice. If you feed a flock of hens, especially if they are used to it, a mixed feed like that, the first thing you know they will pick out the corn, especially if it is just the whole corn. I like to feed cracked corn better; but it is a thing that spoils very readily if it is not kiln-dried. Of course if it is kiln-dried it keeps better and longer. The ordinary corn that you buy is not kiln-dried, and consequently it spoils very readily. If you feed a flock of hens the mixed grain they will nearly always pick out the corn first. It is all right to feed the corn at night; it being in large kernels takes longer to digest. Personally, I like to feed my corn cracked, because the fowl have to work more for it.

A Delegate: I generally throw grain in with the straw, and as they go along they kick up the straw roughly, so that the hens have to work for it in the litter.

Mr. Robertson; I just throw it in whole; in fact, for several years I have used sheaf grain, grain that is not threshed at all; simply put it in the pens there and let them pick it out. And then I take and throw my grain in among it. It is not very long before the straw is cut up; it is surprising how quickly they will break it up. Years ago—when I did not know any better—I used to take the trouble of cutting my straw, but that is just a waste of time.

A Delegate: Do you find that straw litter is dusty?

Mr. Robertson: No, I don't think it is any more dusty than any other litter you can put in.

A Delegate: You don't find it any worse in that respect than hay?

Mr. Robertson: Well, no; I cannot say that I have had any experience in using hay for litter. I don't think it is at all necessary to use hay; it would probably prove to be an expensive litter at the present prices. When you are paying $18 a ton for hay, it would cost a great deal to keep your fowl littered right; and the hay also packs tighter. I like a litter to be loose, so that the grain can work down amongst it.

A Delegate: Do you recommend or advise the use of dropping boards?

Mr. Robertson: That will depend to a great extent on the number of fowl you keep. Down at Macdonald College they do not use any dropping boards; the dropping simply falls right to the floor. Personally I use dropping boards, where they are cleaned off every morning. That is not necessary on the average farm; it may be left much longer than that, but for breeding purposes you have to keep the hens in the best possible shape. In a house of that kind the litter would have to be changed much oftener. Personally, I have no set time to change my litter; I just change it whenever I think it needs it; sometimes of course it gets dirty quicker than other times, but with the dropping boards the litter will last much longer, generally about 6 weeks. With the sheaf grain I keep throwing in a sheaf now and then as the straw gets broken up, it increases the litter and gives them more exercise. To have the greatest success with fowl it is absolutely necessary that the methods practised upon most farms should be abandoned. On most farms—practically all the farms I may say—of course you will find exceptions—they take their flock of hens and let them all run together—pullets and old hens together. In doing that, they are either feeding too little to their pullets or too much to their old hens. What will make an old hen so fat that she will not be in proper breeding condition will not be more than enough to a pullet for ordinary laying rations. The pullets and the old hens should certainly be kept separate so that you can feed your pullets heavily and keep your old hens a little down so that they will stay in breeding condition. The methods followed on some farms is simply to have the flock all together. If they are fortunate enough to get a few eggs in the winter, the hens that are laying in the winter will generally slow up in the spring, and the ones that are idle all winter will begin to lay, and when the breeding season comes on the poorer layers are at their best laying, the eggs from these, are the ones that will be set. You are simply breeding down all the time. The good hens that were laying in the winter, naturally begin to slow up at the breeding season. You are not getting their eggs; you are simply getting the eggs from the poorer layers instead of the best ones. A great many people are advocating trap nests for farms, and are urging the farmers to use these trap nests. I do not agree with this at all. I use them in the breeding season simply because I must know, to get the best results, what hens are producing the eggs. But for the farmer it is impracticable, takes up altogether too much time; he has not the time to devote to this method, and it is not necessary. Of course if there is a boy or girl on the farm who displays a great interest in the fowl and enjoys keeping records it is all very well, under those circumstances, to use trap nests; but under ordinary conditions it is not all necessary, to my mind, if the farmer simply has his pullets in one flock and his old hens in another and feeds them according to the method I have stated. In these days, considering the high price of eggs, and especially among the farmers' wives who are deeply interested in the hens which are laying during the winter time, there are few women on the farms who do not know what hens are laying. If you take the pullets that are laying, and put bands upon their legs, so that you may know, when it comes to breeding season, what birds did the winter laying, and then make up a good breeding pen, from these winter layers you will be breeding up instead of down. The best method is to use the old hens for breeders; that is, to use the pullets as egg-producers, and then the following year put them in as hens; don't, if possible, keep any hens that are not banded; just keep the ones that laid during the winter and then pick out your breeders from them. You don't want to force the old hens during the winter; simply let them take it easy until near breeding time, and then bring them on so that they will be in the best possible condition for breeding stock. In that way you are getting your healthiest and most vigorous females for breeding. A method used by some of the breeders that are making a specialty of breeding for eggs, is to force their pullets to the limit, using trap nest throughout the year, and then select from these. The method I have suggested is the better one; that is, simply for every farmer to know the pullets that have been laying during the winter and select from them, that will give the farmer the same results, with much less work. In breeding—that is, in raising birds from that breeding stock, I like to use hens for hatching—the natural method. I know that this will be tramping on the toes of a good many people who are interested in the incubator business—and I use them quite heavily—but all my good stock, the ones that I expect my best results from, are hen hatched chicks, and these are the ones I get my good ones from. While you can raise excellent chicks with an incubator and brooder, I have yet to see the flock of chickens that will run as even, and finish up as mature birds as good from an incubator as by the hen-hatched method. It is all very well for the farmers to use incubators for market stock; that is the proper use of the incubator, and to do it successfully you must have incubators. Down on Rhode Island they are raising a large number of chicks and they are using almost altogether hens for doing it. Well, I don't think it is necessary. It is too much bother. It is easier to look after incubators and brooders than it is to look after hens. I would not advise anyone raising chickens in large numbers for market purposes to use hens—the incubator is the proper method. You can get any quantity and get them when you want them, but for breeding stock I would advise, after getting a good pen of hens, setting just as many of the eggs from that pen as possible under hens, so that you will be able to select from the chickens raised from that pen. I was talking to Mr. Nix, President of the Prairie State Incubator a few years ago, when I was over at Niagara Falls with a number of the members of the American Poultry Association. A party of us went up from there to Curtiss Brothers' Ranch at Ransomville, New York State—their poultry and duck ranch, where they raise about 35,000 ducks every year in addition to the large number of chickens they produce. Coming back on the train I got into conversation with Mr. Nix. I never expected to find an incubator man who would go so far as to say that he was prepared to admit at once that the hen-hatched chick was better than an incubator-hatched chick. He asked me if I was using one? I said "Yes, for years." He then asked me, "Do you hatch your exhibition stock with incubators?" I said "No." He asked me "Why?" I said, "Simply because I find that I can get better stock with the natural methods than I can with an incubator; I find that my chicks finish up better, generally are a much evener lot, always are; while with the incubator you will have some exceptionally good chicks, taking them as a whole they are not nearly as even, or finish up as well as the hen-hatched chick." He said, "I was interested in asking you that question, because that has just been my experience," He said, "We incubator men have done a great deal, but we have a lot to learn from the hen yet. There is a 'something' that we have not yet got." That statement coming from an incubator man is very significant indeed. For some time I used incubators almost entirely, but at the present time I am hatching all my good stock with hens. In fact, I have paid as high as $2 a hen in the spring, simply to get a setting hen. That looks very extravagant, no doubt, to a farmer, but this was not hatching stock for ordinary farm purposes; it was exhibition stock, that was worth that amount of money after they were properly developed.

A Lady Delegate: Have you had any experience with the Filo system?

Mr. Robertson: Not very much. The Filo system, if there is a place in the back yard for it, where there is no room to allow the hens to run, is a very good thing, and they will lay well in the Filo coops. But for breeding stock it is a ridiculous proposition; the stock is bound to go down. They cannot be kept in these confined conditions and remain good, vigorous stock.

Mr. Lockie Wilson: They have a system of roofing at Macdonald College; do you consider that a good system; would not straw on top of the roof be a good place for lice?

Mr. Robertson: Well, they use disinfectant quite regularly in the summer. They have done that down there for I suppose it is now six years. During that time they have had no trouble along that line. Mr. Graham uses the same thing at Guelph.

Mr. Lockie Wilson: You will have to keep it disinfected, that straw on the roof?

Mr. Robertson: They just take a sprayer and go over the whole house, walls and everything. I may say that in the shed I spoke about previously, where I kept the birds, I at first attributed the success I had altogether to the cotton front. Now I might say that there was over that shed a hay loft, and I have found, from experience, that no matter what kind of a house you put up, if you have a hay loft above it, your house will be perfectly dry. Any house I put up now I will build with a hay loft.

THE CARE OF THE DAIRY HEIFER.

W. F. Stephen, Huntingdon, Que.

I wish to congratulate the Fair Management on the success which they have achieved in this Exhibition. I believe it to be the best Winter Fair that has ever been held here in this City of Ottawa. I believe also—I am no pessimist; I am an optimist—that as it is progressing and increasing from year to year that at no distant date it will assume proportions far beyond our most sanguine expectations. It does not seem long since this was a comparatively small fair, and when our little lecture room was near the poultry, and the speaker had to talk or shout above the noise of the poultry and cattle in order that he might be heard. (Laughter.) Consequently only a comparatively small number attended the lectures. But things have changed for the better in that respect, as in a great many other respects, in connection with this show, and to-day our lecture room is large and comfortable, and I am glad to see that it is becoming well filled. I want to say again that the management of this fair are well worthy of our heartiest congratulations on the success that they have achieved. I wish to congratulate the Holstein breeders—although Secretary of the Canadian Ayrshire Association—on the phenomenal success they have achieved at this exhibition. We Ayrshire men had our innings last year; the Holstein men are having their innings this year. This all goes to show that when we reach a certain standard we cannot hope to remain there; there will always be something a little higher, a little better to aspire to and gain. And, if I may digress for a moment at this stage to say to our young men and our young women present that, no matter what your vocation in life may be—and especially in agricultural lines and in dairy work—let your standard be high. There is a Chinese proverb which says, "Aim at the sun, and though your arrow may not reach it, it will go higher than if aimed at anything on a level with yourself."

The subject which I have undertaken this afternoon to address you upon for a short while is one of importance because it concerns a period in the life of the dairy cow that influences her usefulness for future years. The baby days of the heifer are the most important; then the mechanism is delicate, and the digestive organs capable of assimilating only easily-digested food. In order to have a strong and thrifty heifer the calf must be given the proper care. Here is the weak point in many cow raisers. They stint the feed, spare the care, and spoil the embryo cow. The statement I am going to make may surprise many of you, but I make it only after years of experience and careful observation. I have no hesitation in saying that at least 60 per cent. of the dairy cows of Canada have been injured in heiferhood. Stop and think a moment, and ask yourselves the question: Why are there so many cows with only three or four thousand pounds of milk to their credit per year? The answer is largely neglect in heiferhood. Again the question may be asked, Why do we see so many under-sized, poorly-developed cows in the stables and pastures of our country?—largely neglect in heiferhood. Heiferhood, is the formative period, the period when nature is doing its best work, and so often men transgress and hinder the developing process, that the heifer is injured beyond recovery. Usually the hindering process is considered a matter of economy—false economy; a penny-wise and pound-foolish economy. First, let us consider that the mission of the dairy heifer is to ultimately produce and re-produce. This requires capacity and vigor of constitution. Capacity, that when she reaches the working period she may consume a lot of rough, cheap fodder and manufacture it into the best of all high-class foods, milk, and then reproduce in her progeny that same characteristic to a more marked degree. From birth the heifer should get the foods that will grow it up well; foods that develop muscle, bone, and sinew. The dairy calf must be brought right along, must have no set-back. The first year is the most important in the life of the heifer, and the treatment and care given her largely betokens her future possibilities. Starve, stint and ill-treat her and you will have an under-sized, undeveloped animal with no powers of endurance, no vigor of constitution, no capability to produce largely, or re-produce vigorous offspring. Skim milk, oil cake, crushed oats and bran, roots, clover hay, and alfalfa are foods rich in protein, and are suitable for growing and developing the heifer, and these foods she should have in abundance. She should be housed in comfortable quarters—not too warm—and well vetilated. Some of our dairymen keep their heifers in rather open box-stalls; and it is a commendable practice. One of the difficulties that the farmer has to contend with is tuberculosis; and we find in developing the heifer under rather more severe conditions than has been our custom we make her more rugged, healthy and vigorous, and less subject to that dreaded disease which has affected so many of our cows throughout the country. Another important point to which I may call attention is the custom of allowing a heifer or cow to go to the spring or brook, or even to an ordinary trough and gorge herself once a day with ice-cold water. Animals require a great deal of water during the winter season, especially if no roots or ensilage is fed, in order to keep them healthy and able to properly digest their food. To take large quantities of cold water, it takes much energy of the animal to heat that water so that it may perform its function, and thus the vitality of the animal is lowered. In the countries where women largely handle the cows and the heifers, we find the cattle more docile, more tractable, because of their gentle handling; and on the other hand, where the cattle are handled by men who have not the patience, who have not the gentle hands that the women have, the result is more nervous, vicious animals. I have a case in mind of a neighbor, when I was a lad, who always had kicking cows. I was in the stable one day and I soon discovered why the cows were kicking because they were abused by the boys. The first winter heifers should have plenty of exercise in box stalls inside and have a run outside in the yard when the weather is fine. They should have access to salt daily, and get plenty of water every day and often. Do not mind if the heifer grows a good coat of hair the first two winters. It is nature's protection from cold and draft. The second winter the heifer should again be well fed on foods rich in protein. During the summer season, when the heifer is on pasture, she gets the complete food, fresh grass. For winter feeding some roots should be included in the ration, as they act favorably on the digestive organs and keep her in a thrifty, healthy condition. The heifer should receive kindly care. The temperment of the heifer is largely what the herdsman makes it. Usually the vicious heifer is made so. The dairy heifer possesses naturally a nervous temperment. The kind word, the gentle pat of the attendant, is rewarded by developing within the young animal a confidence in mankind and a docility of disposition that well repays the kindness bestowed. Teach the heifer to be led when quite young This may save trouble later on.

No heifer should be bred until she is well developed. From 22 to 27 months, according to the size and vigor of the heifer, is the proper time to breed. When bred too young and immature the milking propensities may be developed at the expense of the vigor and constitution, with the result that weaklings are reproduced in the progeny and the cow is injured for life. The reproduction side is least thought of. and it is perhaps the most important. In this age of high production and phenomenal records of milk and fat, there is a tendency to produce at the expense of reproduction. That we perpetuate the deep milking qualities of the dam in the progeny should be our chief aim, and this cannot be done by breeding our heifers at an immature age. The pregnant period of the heifer is one in which she requires to be given the best of care and attention and kindly treatment. As she nears the freshening period, she should be fondled by the attendant and the udder frequently massaged. This prevents the udder becoming inflamed, and gets the heifer accustomed to having the udder handled so that when she freshens she will allow the attendant to milk her with ease. I have found it good practice to allow the calf to be with the heifer for the first day or so, and when the calf is sucking, the attendant draw some milk at the same time. This gets the heifer accustomed to having someone also draw the milk. On no account should the heifer be roughly handled, as incalcuable harm may be done by rough treatment at the freshening period. The heifer may be taught, can be taught, should be taught that this milking process is a part of her life. and if gently but firmly handled she she will soon want to be milked, and will readily stand while the milk is being drawn. The first milking period should continue for at least ten months; this, to get the heifer to form the habit of long milking. The cow, like ourselves, is a creature of habit. Allow her to dry off at six and seven months and she will want to stop working at the same time the following season. Many a good cow otherwise has been spoiled by being allowed to form this habit of short milking. The cow can work to good advantage for nine and ten months and produce good strong progeny, provided, of course, she is given the proper feed and care. Perhaps someone will say "Don't get the heifer too fat." Well there is less danger of spoiling her this way than by under-feeding her. The sooner this fallacy is exploded the better for the dairy herds of Canada and for the dairymen themselves. Many a good fat heifer I have seen has shown little evidence of beefiness after her second freshening period. If they have the right characteristics the fleshiness will disappear in the milk pail and we have a heifer that is a credit to the owner and to the great herd of dairy cows.

MR. GRISDALE: I think that in the breeding of dairy cattle and the raising of the stock, we should require to increase our herd year by year in order to replace those that are culled out or those that have become too old to use. There is one point I should like to lay emphasis upon, and that is the importance of feeding the heifer well. As Mr. Stephen has rightly said, too many farmers conclude that because she is a heifer, because she is not producing milk, all she has to do is to look after herself—and they perhaps don't give her a very good chance of doing it. The consequence is that many heifers arrive at the time of dropping their first calf in from two to three years, and have been in such a condition right through that they are growing pretty low in flesh, low in vitality, in very poor shape, indeed to develop into dairy cows. In fact a very large part of the development they have to make has to be made after they have assumed the duty of motherhood and are producing milk; the y have the double duty or function to perform—developing themselves and reproducing themselves at the same time. This is a great mistake; a cow for the dairy should be fed right through and fed well.

MR. DRUMMOND: I really do not think that I have very much to say. I just came in and I do not know what has been said. I only heard the few remarks made by Mr. Grisdale. I may say, however, that the question of feeding heifers for dairy purposes cannot be too strongly emphasized neither can you emphasize too strongly the fact of feeding the dairy cow when she is dry. I consider that is where the great fault is; that our dairymen in this country forget that during the time she is dry she has to be fed as well as when she is giving milk. I did not have the pleasure of hearing the address delivered by Mr. Stephen, but I have no doubt what he said was both interesting and instructive, and based upon long years of experience. There are no doubt a large number of dairymen here who have had a great deal of experience in feeding dairy cattle; but don't forget that feeding has a great deal to do with production. You cannot make milk out of air. You must feed, and you must feed well. and you must feed foods that the animal is fond of, and foods that are nutritious. Don't make any mistake about that part of it. The heifer as well as the cow must be fed.

A DELEGATE: Do you prefer feeding the oats to calves whole or crushed, or feeding oats at all?

MR. STEPHEN: I prefer the oats crushed coarse, rather than feeding whole grain. It is a common practice in some parts to feed oats to calves. I have found that frequently the oats pass through without being altogether masticated, and I find by crushing the oats you get better results. I find also that they thrive better on crushed oats and bran than they do on the crushed oats alone. Add a little oil cake as the calf grows.

A DELEGATE: At what age do you commence?

A.—About four weeks. From two to three weeks the calf will take crushed oats and bran, and then the fourth or fifth week add a little oil cake.

MR. GRISDALE: Feed it dry?

MR. STEPHEN: Yes, in the buckets, after they drink their milk.

A DELEGATE: How long should a calf be fed new milk after it is born?

Mr. Stephen: It depends a great deal on the price you are getting for the milk and the value put on your calf. New milk is rather an expensive diet these days. We find that up to the end of three weeks, from three to four quarts twice daily depending on the size of the calf. Give new milk for two weeks and then gradually reduce the new milk and add some skim-milk, and at the end of three weeks give the skim-milk alone. I would not like to have the calf suck the cow any longer than a month, especially registered stock. They grow thicker in the neck, which we do not want in our pure-bred animals. Teach them to drink.

A Delegate: If you have a cow going dry, we will say in three or four weeks, would it be advisable to put a fresh calf upon her for just that short period?

Mr. Stephen: Yes, I see no objection whatever to it, if you want to feed the calf new milk for that period three or four weeks. I have done it and I know of cases where it has been done with good success and results, but the objection is, to letting the calves suck for any length of time.

A Delegate: Do you believe in feeding all grain dry to calves?

Mr. Stephen: Yes; there may be an exception to that. For instance, where skim milk is scarce, or where you are sending it to the condensery, and you have little or no skim milk, it is a very good plan to feed a little whole milk. Take one quart of new milk, add some water, a preparation made from low-grade flour and linseed meal—four pounds of coarse low-grade flour to one pound of linseed meal, and make this up as gruel and add this to the milk. I have had very good results in feeding this to calves when skim milk was scarce. Some like to add oil cake as well. I have found the low-grade flour and the pure linseed meal to give equally good results. I prefer feeding the oil cake along with the oats and bran dry.

A Delegate: How much milk would you feed??

Mr. Stephen: That depends altogether on the size of your calf; the first few days of the calf's life you should not give large feeds of milk, only 6 pounds to a feed. Then you may increase it to 8 and 10 lbs., according, as I said, to the size of your calf.

A Delegate: And when you cut off the new milk?

Mr. Stephen: When you cut off the new milk you add skim milk, but you don't want to feed more than say 10 lbs. at one time, unless you have a very large calf. Those who have fed new milk three times a day to a young calf have had good results. I have never practised it. The matter of the economy of time has to be taken into consideration; I have had good results feeding it twice a day only.

THE BEEF CARCASS FROM THE CONSUMERS' STANDPOINT.

J. H. Grisdale, Director, Dominion Experimental Farms, Ottawa.

I am very sorry we have to leave that subject of dairy cattle. I believe it is the great subject, the great question for Eastern Ontario and these Eastern Provinces in general; but of course we all have to eat, and man cannot live upon milk alone. We have to have something else, and therefore probably it is wise, especially under the circmstances—this being a Fat Stock Show—that we should devote a little time to the question of beef carcasses, or the question of beef in a general way. Yesterday we had a live animal, a steer, on this platform. We discussed him, criticised him, and commended him. This afternoon what I ought to have had here was a beef carcass but it is not forthcoming, the principal reason being that we have no way of hanging it up here so that you could conveniently see it. However, I had a young man prepare these different charts, which will serve in some measure to take the place of that carcass that we ought really to have here, in order that this matter might be more clearly and more vividly brought to your notice, in such a way that you could remember it. We will do the best we can with the charts before us, and I hope you will remember the points I shall bring out. They are not very numerous, but will be of interest to those who are producing beef. The beef animal, such as we had here yesterday, is as nearly a solid block of flesh, of body, as we can get it, supported at the four corners by four legs. You see on the chart to your left a figure of what may be called a first-class beef animal. You will notice that the top line until you get to the neck, and the bottom line are nearly parallel; you will notice that the front, this line here (illustrating) and this line here are nearly parallel. It is oblong, and if you could see him from behind you would find that the sides were nearly parallel, silghtly rounding, and that the top and bottom were nearly parallel, looking across here and there. (Illustrating). That is, it is not exactly a cube, but a block, a solid block say of flesh, and the nearer we can get the living animal to that conformation the more nearly do we consider that we have achieved the best in beef production. Now the question may be asked, "Why do we want this conformation?" because in this matter, as in all other matters having anything to do with agricultural pursuits, there must be a reason, otherwise we are working for nothing, or we are aiming at things that are merely ideal but which are not practical. In this case they are both ideal and practical, because when we get near to that particular conformation we also get near to getting the best results in the way of quality and quantity of the right kind of flesh produced. If you will examine this chart to your left you will observe that I have divided it into sections, and on each one of these sections a word is written—I hope you will be able to see it from your seats. This part of the animal is called the "round." Now if you compare that with the carcass over here, which is supposed to be the same steer killed and cut up by the butcher ready for selling retail, you will find that that round shapes itself into three sections, one, two, and three, the end, the main round, and the rump. That part of the carcass we like to see as well developed as possible. It usually makes up about a quarter of the whole carcass and is the part of the carcass that is not the highest priced, but amongst the high-priced meat. It is one of the superior cuts, and since it constitutes such a large proportion, or since it may be made a large proportion of the carcass, you will understand why we want the beef animal to have this peculiar formation. If this were a dairy cow, when you lift the tail here (indicating) it would go down straight, almost straight, to the hock. It would go down in this way, and you would have a line running from here, coming over here (illustrating) and down again to the hock, much of that large part would be cut off behind, and after you come between the legs that is to the twist, you would see that instead of the legs or thighs being joined together, well joined indeed, about this point they would be separated here probably half-way further up, indicating the lack of muscle on the inside. If you look at the outside, instead of getting that wide, that great width from here, through here with which he started, he would narrow down and you would have a great scarcity of flesh over these parts. Now again the dairy cow very often has a sloping back; in some cases it is fairly straight, the ribs, instead of springing out slope down; whereas in a good beef animal you want ribs to spring right out and carry a large amount of flesh on top. We find that most of the flesh is there. Sections number four, five, six, and seven of that carcass diagram make up the loin and rib. The loin is probably the most expensive or highest priced part of the carcass when you come to buy it from the butcher; and the greater proportion there is of this kind of meat in the animal the higher price will the butcher pay for it. He will charge you, we will say, 7 or 8 cents for the chuck, or possibly even 8 or 10 cents for this part, then he will probably charge you 18 or 20 cents for the rib roast, and from 22 to 25 cents per pound for the lion, and from 16 to 20 cents for the round. This gives approximately the relative prices for the different parts of the carcass when you come to buy them at retail.

Now you can understand why this particular part of the animal is of such importance, and you know why we are so exacting in our requirements in this feature of the animal. If you had observed the different judges going over the various animals yesterday in the ring, and noticed the animal that we had on the platform, you would have seen the great care with which the judge examined the upper part of the animal, neglecting the lower part of the animal almost entirely, or very largely at least. This part down here, the plate called "triangle" and the chuck, sell at very much lower prices than the others. In this diagram I should also like to have shown you the fat along the top. However, those of you who are sufficiently interested in the matter can go downstairs, and in the carcass room you will see beef animals that were killed in the slaughtering contests or carcass competitions. I have not had an opportunity of seeing them yet, and did not examine them before coming here, but if I may judge by what we saw yesterday you will find from an inch to an inch and a-half and possibly, in some cases, two inches of fat outside the muscular part of the carcass. Now many people object to having this large proportion of fat and think that in paying 25 cents per pound for a cut off the lion or a rib carrying probably one quarter or even 1-5 of its weight in fat is a mistake, and they don't want that kind of a carcass. They would rather buy the piece of beef that has a thin layer of fat, probably an eighth or a quarter or half an inch at the most of fat on the outside of it. That is where the mistake is made in many cases. The best meat, the meat that will give the best satisfaction, that will go the farthest, that will prove the most digestible, that will have the best effect upon the people who consume it, is the meat that has a good, thick layer of fat on the outside, and it is easily understood why. If you get a piece of meat of that description it is very much more palatable; and it is the things that are the most palatable which are the most effective in buliding up the human frame, and in lending and imparting vitality and strength to us. Those are the foods which are the most useful in the dairy business, as Mr. Stephen said. No matter what animal may be, a human being or a rabbit, the food that is the most palatable, the most acceptable to the taste,, is the food that is going to give the best results every time. Meat that has this large proportion of fat upon it you will find to be most nutritious, and it will also be found to be cheap, because it goes farther. Do not labor for a moment under the misapprehension that because it is fat therefore it will not be eaten. I have yet to find a good roast—I do not mean the same as some of the carcasses we see, with say four or five inches of fat upon them—but the good roast with from one to three inches of fat on the outside is never neglected, or despised, when it comes on the table. I do know that there is very much more to say about these carcasses. It is a subject which cannot be enlarged upon unless one went into an accurate description and a full discussion of the carcass technically, part by part. I would like to repeat, however, that we should not labor under the mistaken idea that because there is a large proportion of fat therefore the carcass is not the best for the butcher; that is a great mistake. Most of our small butchers and a large, a very large proportion of the consumers especially in small towns think that because the animal is fat therefore he is not the best suited for meat production and consumption. Let me assure you that there is not an animal in this whole Show to-day, either alive or that has been slaughtered, that is too fat to make economical food for the human race, and this particular class of beef makes economical food for the reason that it will have a good effect and will undoubtedly prove just as cheap in the long run as the other, and in the end very much cheaper. With regard to sheep carcasses; I had the opportunity of examining them because I was judging them this morning. If you will go to the carcass room after this meeting and inspect the sheep carcasses you will find that some of the sheep have almost from 3 to 3½ inches of fat over the flesh. That looks like an abnormal quantity, and it possibly is. I won't say that it is the very best; but I have had some experience with fat sheep, and I remember the fattest sheep I ever saw was a sheep that was a winner at the International Show at Chicago, came to Guelph and was a winner there and was slaughtered there. The gentleman who owned the sheep was kind enough to send me a piece of it here in Ottawa. I can say that there was not one little speck of fat that was upon that meat left after we got through with it. My wife, when she got it, looked upon it with horror, said that there was no possibility whatever of utilizing such an immense quantity of fat as compared with the small amount of lean meat, but she soon changed her mind, and now she always asks for that particular kind of meat. I believe that you who at the present time think that because meat is very fat—therefore it is not palatable, and, therefore, it is not wholesome, if you once got hold of some good, real good meat, such as you can find here down in the carcass room to-day, you would, without hesitation, and without any exception, ask for that kind of meat wherever and whenever you went to buy. Even were you obliged to pay a little more for it you would certainly find it more useful, more palatable, and more acceptable. I am not trying to make a case for the butcher, you understand, in this fat meat. I am trying to make a case for the farmer, to incite him to produce a good animal, and if we can as consumers learn to appreciate the best meat, we as producers can then command higher prices for the meat we do produce and have the great satisfaction of putting better beef on the market.

A DELEGATE: Is there any difference in the foods to make the meat more palatable?

MR. GRISDALE: Well, there is some difference, but a very slight difference. Certain foods have, no doubt, some influence in affecting the quality of the meat. Certain foods will make a rather soft and oily fat, while others will make a firm and more buttery fat, when it is cooked, and of nice quality. For instance, beans and peas will make a firm fat in the case of a steer; beans in the case of pork will make a soft fat, curious to relate. Both beans and peas are highly nutritious foods. Oil cake meal makes the soft fat, but it makes very palatable meat indeed, probably as nice flavored meat as you would hope to get; it is really a most palatable fat; but any of the foods on the market to-day may be expected to give good results in the quality of the meat.

A DELEGATE: What breeds of cattle are the best for producing the highest proportion of good meat?

Mr. Grisdale: Well, anyone of the beef breeds—Shorthorn, Herefords, Aberdeen-Angus and Galloways—any one of them may be expected to give good results. We have been feeding for some years animals of the different breeds. In fact, we have at the present time some young animals of each of the different breeds I have mentioned at the Experimental Farm. So far as the proportion of meat is concerned, I would not like to say that one breed will do better than another, so far as economy and putting on flesh and putting on gains is concerned, I would not like to say that one breed has any advantage over another. They all do well. Some breeds do a little better under certain conditions than others. For instance the Hereford steer may be expected to do a little better outside than he will inside; and the Shorthorn, on the contrary, may be expected to do a little better inside than he will do outside. In my experience, if you take a bunch of Herefords and Shorthorns and let them run in the same pasture, the Herefords will do a little better than the Shorthorns, and if you give the same conditions inside, the Shorthorns will do a little better than the Herefords, probably on account of some peculiarity in their nervous make-up.

A Delegate: Is corn a good thing to feed?

Mr. Grisdale: Corn is a very superior food for beef production. Unfortunately, we do not produce a great deal of corn as grain in this eastern part of Canada; the corn ensilage which we do produce in large quantities, cannot be beaten for beef production. We have, during the past year been feeding fourteen or fifteen steers at the Experimental Farm, some of which competed in that class here, as we sold them to a dealer in this neighborhood, and he showed them and they stood right up amongst the first; they were all fed on corn ensilage, twelve months of the year. We had no room to pasture them, therefore we had to keep them inside, and some of the carcasses* downstairs are from the steers that were fed upon this food.

A Delegate: Do you consider that feeding ensilage has anything to do with tuberculosis—feeding too much ensilage, I mean. Has not ensilage a tendency to induce tuberculosis?

Mr. Grisdale: Not at all. Tuberculosis depends rather upon the conditions of your stable than upon the feed. I regret very much that Prof. Day is not here to-day to take up that subject, because it is certainly a very important one. Corn ensilage is, without doubt, the best, the cheapest, the most certain, the most economical, the most easily handled, and possibly the most unfailing source of nutriment or of food supply for the farmer of Eastern Ontario that can be imagined or that is grown to-day. Bear that point in mind. These are strong statements, no doubt. If you had heard me speaking the day before yesterday on alfalfa as a food for cattle, you might probably laugh at me, and think I was contradicting myself, because I said that alfalfa could not be beaten; but alfalfa alone, just like bread alone or milk alone, is not enough; you must have something else, and that something else is corn. If you are feeding steers, get a silo; if you are in the dairying business, get a silo; if you are raising heifers for selling, get a silo; if you are in the sheep business, get a silo; get a silo, I would say, for almost any live stock business you are in, excepting pork production. If it is in pork production you are engaged, you don't need a silo; corn is not very good for pigs. Any live stock, excepting pigs and horses, do well upon it.

A Delegate: State what amount of concentrates should be used along with the corn to produce this beef? What do you use to produce this class of beef?

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* These carcasses won first, second and fourth prizes in the beef carcass classes.

Mr. Grisdale: We use bran, a little bit of grain, say oats, a very small proportion, some oil cake meal, and gluten meal. That is a by-product from the starch factories. We have each year bought a car-load of it for use in our dairy stable and in our beef production experiments. We start the steers off by giving them some light meal; at the beginning we usually give them a mixture of about 500 lbs. of bran and 100 lbs. of gluten meal, or possibly corn meal, as the case may be. You see, it is a very light meal, and then as the feeding period advances we change that until after a time we are giving them probably 500 lbs, of gluten or some other similar heavy meal, and about half as much bran, making the meal as the feeding period advances, very much heavier. We always start them off with a very light meal ration. When we are beginning to feed steers, we feed them 50 lbs. of ensilage a day and no meal at all, but a little bit of hay. In a week or two we add about a pound of light meal and in another two or three weeks we increase that slightly, until we have them, at the end of two or three months, on what might be called full feed. So at that stage it would be half and half of bran and some heavy meal; and as the feeding period advances, when it is in the fourth, fifth or sixth months, is is nearly all this heavy meal with a slight proportion of bran. That is a brief history of our feeding plan.

A Delegate: What is the best time to cut corn for ensilage?

Mr. Grisdale: Well, it is best when it is in what is called the glazing stage —just about ten days after it is in the milk stage, or about ten days or a week after it is ready to boil, when after you would enjoy it if it were cooked. You won't get it all in that stage, of course. Some of it will be a little under and some a little over, because corn, as you know, goes on irregularly.

A Delegate: Do you not feed them any roots?

Mr. Grisdale: Yes, we give them some roots, too; but we can get along fine without roots. We could not get along without ensilage. Corn and roots has been a much-debated question for some years, as to which is the better and cheaper. We can produce corn for about 50 per cent. lower cost per ton than we can roots. That is, it costs us in the barns or silos about $1.50 to $2.00 per ton according to the season. If we have a big crop, it costs us probably less than $1.50; if we have a smaller crop, probably as much as $2. Roots cost us say anywhere from $2 to $3.50; so that it costs us about 50 per cent. more on the average to produce a ton of roots than it does to produce a ton of corn; that is, when we have them in the storage rooms. It is, besides, a little more expensive to feed roots, because they have to be pulped as a rule to get the best results. It is not absolutely necessary to pulp them, but we think they do better when they are pulped; they are not always ready to feed and convenient; you must be careful of the storage; you must not let them freeze. With ensilage, however, it does not matter whether it freezes or not. We have tried it over and over again with beef and dairy cattle, and we find that a ton of corn ensilage is worth just as much as a ton of roots. In feeding ensilage, it is always there, it is cheaper, and it is very much more pleasant work growing ten acres of corn than it is ten acres of roots. If you don't believe it, try it. I said that ensilage is all right whether it freezes or not, but it won't freeze if you are careful in taking it out of your silos, even if it is a single-stave silo. If we get the ensilage a little higher in the middle than it is at the sides it freezes hardly at all, and what little is frozen, if it is mixed with the rest of the ensilage, by the time we are ready to feed it there is no frozen part at all. When you unload your silo in bad weather, and have a layer of frozen ensilage around the edge —as may be possible under the conditions as they existed during the last two weeks —watch your chance and break that down and keep the level of your ensilage lower at the edge—I mean the surface of your ensilage lower at the outside than it is in the centre.

A DELEGATE: You get your manure from the city, don't you?

MR. GRISDALE: Our farm does not get one pound of manure from the city, nor from any other source but our own farm. We get manure from the city for our orchard, but the orchard does not give one pound of feed to the farm, and we cannot be expected to give them any manure. But on the farm proper there is not one half-pound of manure got from the city, and I will risk my reputation upon that. And further than that, we not only produce our own manure, but we hand over to the other departments about 100 tons of manure a year from the farm. We do not use any manure from any other source whatsoever.

A DELEGATE: To get the best results from dairy cows, isn't it necessary to feed roots along with ensilage?

MR. GRISDALE: No, I would not say that it is. For best results in dairy cows get them to eat the most feed you can. They will, of course, eat a little more if you mix roots with ensilage, say a quarter to one-fifth roots as against the rest, three-quarters or four-fifths ensilage; that is our mixture as a rule. We cannot see that the amount of roots we feed has any more food value than the amount of ensilage, but it makes it a little more palatable. Cows like roots possibly better than they do ensilage, they appear to be slightly more palatable, but good ensilage is a very palatable food, too, and there is no trouble in getting cows to eat plenty of it.

THE CHAIRMAN: If there is no more discussion there is just one little matter I would like to mention. There is one exception that I should like to take to a statement made by Mr. Grisdale when commencing his lecture this afternoon —that we cannot live on milk alone. There may be some truth in that; we all like a good sirloin roast or a good sirloin steak. We can live on milk alone, however, as will be seen from a case which came under my personal observation. I simply make this statement to show the great food value of milk, when taken even as the only diet. A young man who was a cousin of mine in Montreal, swallowed a piece of concentrated lye when a child of two years of age, which naturally destroyed the lining of his stomach. He is now a young man of 22 years of age and was unable, since that time, to eat a mouthful of solid food which would remain on his stomach. This young man has been raised on milk entirely, and is 6 feet 4 inches tall and built proportionately. He has gone through McGill College and is now an engineer, and a very bright young man.

REPORTS OF JUDGES ON POULTRY EXHIBITS AT THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1912.

L. G. JARVIS, GRIMSBY.

Barred Plymouth Rocks. A very large class and some fine birds. Cocks; 1st, not quite finished, good color, narrow in barring, clean wing; 2nd, good shape, lost to 1st in color; 3rd close to 2nd but not as good in undercolor; 4th and 5th, fair birds. Hens; 1st, an extra good one, in fine condition, wins easy; 2nd, too wide in barring, good shape; 3rd, not so good in surface color, good shape, neat head. Cockerels; 1st, one of the Guelph winners, good bird, all rock in shape, even in barring, nice head and comb; 2nd, was just crowding 1st, but was not finished, would show better in a few weeks; 3rd, a good one and the same can be said of 4th and 5th, all fair shape, the color and barring decided the difference between the specimens.

Andalusians. A very nice class. Cocks; 1st, the proper color, well laced, off on comb shape. The distinction between color of wing, hackle, saddle and tail were well defined, what we look for to carry out the beauty of the male bird in this variety; 2nd, better comb, a shade dark in color, lacing good; 3rd, not so good in any section. Hens; 1st, a beauty, all blue, even in lacing and clean in wing; 2nd, a sister, hardly as clean in color of back; 3rd, not as good in color in all sections. Cockerels; 1st, a good one, nice shape, an elegant comb, fine color; 2nd, hardly as good in color and defective in comb; 3rd, not as good in color. Pullets; 1st, very nice, wins easy; 2nd, lost in color, but better than 3rd.

Black Spanish. Not a large class and quality not as good as we would like to have seen. Ist and 2nd cockerels good; 1st winning on smoothness and length of face.

B. B. Red Games. A nice class. Cocks; 1st, a good one, nice station, fair color, short and hard in feathers; 2nd, not as good in color of saddle or hackle. Hens; 1st, nice station, short in body, hard in feathers; 2nd, larger in body, good color; 3rd, not as good in station. Cockerels; 1st, fair color, nice station, neat head; 2nd, not as good in head shape or color, in one or more sections. Pullets; 1st, a nice one. I liked her color much, free from shafting; 2nd, fair color, lost to 1st in shape of body; 3rd, a good one, we fault her in color.

Pyle Games. A very nice class. Cocks; 1st, nice station and quite clean in color; 2nd, close up. Hens; 1st, while a trifle weak in color of breast, I prefer it to one deeper in color but dirty in color of wing and body; 2nd, nice station, a little rusty in color, nice legs. Cockerels; 1st, fair station, nice color, neat head, in color only beat 2; 3rd, not as nice in shape of body. Pullets; 1st, a neat one, yellow legs, in this particular wins over 2nd; 3rd, a very neat one, but fault her shape of body.

Brown Red Games. Cocks; 1st, nice color, cut away nicely, hard in feather; 2nd, only lost to 1st a trifle in color. Hens; 1st and 2nd, about equal, 1st winning in lustre of plumage. Chicks very good, color decided the placing of the ribbons.

A. O. V. Game. Cocks; 1st, Sumatra, a grand bird, winning over a Birchen both in shape and color; 3rd, a fair bird, off in color. Hens; 1st, Birchen, also 2nd, nice birds, wins over Sumatras in color and shape.

W. C. B. Polands. Cocks; 1st, a nice one, has won before; 2nd, hardly as good in crest shape, grand color; 3rd, fair. Hens; 1st, a gem, hard to fault; 2nd, not quite as good in crest shape, good color, free from purple. Cockerels; 1st, a good one, large crest, great length of feathers; 2nd, crowding, 1st wins only in shape of body and tail; 3rd, not as good in color or crest. Pullets; 1st, a neat one and wins on color; 2nd, nice crest; 3rd, weak in color of body.

Silver Polands. Both in bearded and plain, extra fine. The same might be said of the Goldens, both varieties.

Buff Laced Polands. Not a large class but a few good ones.

Old English or Pit Games. A large class, very few what you may consider good specimens of Old English. Some fine Pit shown.

Toulouse Geese. 1st gander, an old winner in size and color wins easily here; 2nd, a fair bird, not as massive in head as 1st or as deep in body; 3rd, smaller. 1st goose, nice body, wins easily; 2nd, smaller, fair shape. 1st young gander, a good one, larger than 2nd; the same can be said of the females.

Embden Geese. Not a large class, winners fine birds.

African and Chinese Geese. Some extra good birds shown.

Alyesbury Ducks. 1st old drake, nice head, clean bill, deep body and fair keel; 2nd, not as perfect in head or bill shape, nice body. 1st duck, deep body, great length of bill; 2nd, close in shape; 3rd, a fair one. 1st young drake, not so large as 2nd but better head and bill shape; 2nd, large; 3rd, close to 2nd, nice body, keel not so prominent. 1st young duck, a grand one, perfect in body shape, also nice head and bill; 2nd, well up, keel not so well defined; 3rd, beaten in body shape..

Pekin Ducks. Not as large a class as the Aylesbury, winners good.

Cayuga Ducks. A few good ones, with rich, lustrous green, clean, black bills and legs.

Indian Runner Ducks. Only a few pairs shown, some of the winners at Buffalo and Guelph.

Rouen Ducks. A fine class, some of the winners of other shows.

Muscovy Ducks. A fair entry, with some good ones.

Bronze Turkeys. A very large entry and some extra good birds. 1st old gobler won special for best bird in the show.

White Holland Turkeys. A few nice ones and in good show shape.

WM. McNEIL, LONDON.

Light Brahmas. Cocks; 1st, a grand big bird in splendid condition, fair head and comb, with a grand hackle, splendid tail, good wings, nice leg and toe feathers, but a little dark on breast; 2nd, another good one, and close up to first, but a little off on wing; 3rd, a good one but smaller; balance of class good. Hens; 1st, an easy winner, nice head and comb, good hackle, nice length of back, good tail, splendid wing, good leg and toe feathers; 2nd, another good one, not so good on leg and toe feathers as 1st; 3rd, close up to 2nd; balance all fair hens. Cockerels; 1st, a good big one, a nice head and comb, good length of back and a grand tail, splendid leg and toe feathers; 2nd, another nice one, but not so good in wing; 3rd, close up to 2nd. Pullets; 1st, a nice mate for 1st hen, grand head and comb, nice hackle, good tail and splendid back, good leg and toe feathering; 2nd and 3rd, both good, not much choice between them.

Dark Brahmas. A small class and not as good as I have seen. Cocks; 1st, an easy winner; 2nd and 3rd, fair. Hens; 1st, a nice steel grey and well pencilled; 2nd and 3rd, both too dark in color and not well pencilled. Cockerels; 1st, an easy winner, nice head, good hackle, good length of back, good leg and toe feathers; 2nd and 3rd, not much difference between them and badly mottled on breast. Pullets; 1st, an easy winner, nice mate for 1st hen, good steel grey, nice length of back, good leg and toe feathers; 2nd and 3rd, fair birds, but a little rusty in color.

Buff Cochins. A grand class. Cocks; 1st, a grand big fellow, even, uniform buff color from head to toe, and just filled the coop nicely, about as round as if made in a pail; 2nd, another good one, about as good in color, but not so big; 3rd, another nice one, about a mate for 2nd; balance of class all good. Hens; 1st, a good mate for 1st cock, she was an easy winner only in size; 2nd, another good one and as perfect in shape and color as you could make her; 3rd, another good one close up; balance of class all good. Cockerels; 1st, a grand big fellow and a nice light uniform buff from head to toe, would have been better if he had been a little richer in color; 2nd and 3rd, good in shape but too high in color. Pullets; 1st and 2nd, both splendid in shape and color; 3rd, another good one; balance of class fair.

Partridge Cochins. Cocks; 1st and 2nd, fair. Hens; 1st and 2nd, a little better than cocks. 1st cockerel and pullet, medium.

Black Cochins. Cocks; 1st, a nice bird, good shape, splendid in color, good leg and toe feathers; 2nd and 3rd, not much between them. Hens; 1st, a good mate for 1st cock, splendid shape, good color, nice size. Cockerels; 1st, a little too young but promising. Pullets were about the same class.

White Cochins. Cocks; 1st, fair. Hens; 1st and 2nd, two splendid big ones in good shape and easy winners; 3rd, a nice one but too small. Cockerels; 1st, a nice stylish bird, good head and comb, nice back, good cushion, but stood a little high on leg; 2nd, another fair bird; 3rd, a big fellow but very creamy. Pullets; 1st, had splendid shape, good back, nice cushion, good leg and toe feathers; 2nd, another good one; 3rd, close up to 2nd.

Langshans. Cocks; 1st, grand Langshan shape, nice head and neck, good short back and high tail, deep body, stood well up and as green as a bottle; 2nd, close up to 1st. Hens; 1st, a good one, not much difference between her and 2nd. Cockerels; 1st, a grand bird, a mate for 1st cock, splendid shape and good color; 2nd, another nice one. Pullets; 1st and 2nd, both good. There was one grand pen of Langshans that won 1st, a pen of Black Cochins won 2nd, a pen of Buff Cochins won 3rd. Solid Colored Asiatics all competed in above class.

White Plymouth Rocks. Cocks; 1st, in the pink of condition, as white as snow with a grand pair of legs and a good beak, his only trouble was a little short on back; 2nd, another nice bird in splendid condition, a little narrow and hardly full enough in breast; 3rd, a splendid one but poorly shown, he had not been washed; balance of class all good if they had been well washed. Hens; 1st, a splendid one of good size and as white as snow, nice head and comb, good length of back, and a grand pair of legs; 2nd, another nice one but not as good in color or as big; 3rd, close up to 2nd; balance of class all fair. Cockerels; 1st, a good one, nice head and comb, good back, splendid shaped tail, and a grand pair of legs; 2nd, another good one but not in such condition as 1st; 3rd, close up to 2nd; balance of class fair. Pullets; 1st, a nice one, nice head and comb, good eye, splendid back, nice tail, nice pair of bright yellow legs, an easy winner; 2nd, another good one but not so well fitted as 1st; 3rd and 4th, both good but not in the same class as 1st and 2nd. There were four pens; 1st pen was as white as snow and in the pink of condition; 2nd ran them hard; 3rd was a grand pen but had not been washed or I believe would have won 1st.

Black Hamburgs. A nice class. Cocks; 1st, an easy winner, splendid in shape, grand in color, but a little off on comb; 2nd and 3rd, both good but caught a little by the frost which spoiled their appearance. Hens; 1st, a nice one, good in shape, nice comb and earlobes, the right type of a Hamburg, an easy winner; 2nd, a grand hen in shape and color, but a little grey on flight feathers, otherwise would have been a sure winner; 3rd, another nice one. Cockerels; 1st, about the best I have seen for some time, nice comb, good lobes, splendid in color, with a grand flow of tail, something like the Cockerel that won at Guelph, but better in face; 2nd, another nice one and will make a grand old bird; 3rd, close up to 2nd. Pullets; 1st, splendid in lobes, a little large in comb, grand in color with a splendid shaped tail; 2nd, another nice one, and as a hen I think she will run 1st hard; 3rd, another nice one but too young, splendid in color, good shape.

Golden Pencilled Hamburgs. Cocks; 1st, a grand old bird, an easy winner, splendid in color, nice head and comb, and a good golden bay all over, had a grand tail; 2nd, another fair bird; 3rd, fair. Hens; 1st, an easy winner, about as perfect in color and pencilling as it is possible to get one, but a little off on comb; 2nd, another good one but not so rich or as well pencilled. Cockerels; 1st, a nice one, good comb, nice lobes, good golden bay all over and a nice tail; 2nd, another good one, just about as good as 1st; 3rd, a fair one. Pullets; 1st, nice head and comb, good color and well pencilled, a nice tail, rich in color; 2nd, another good one, not much difference between her and 1st; 3rd, a fair bird.

Silver Pencilled Hamburgs. Cocks; 1st, a grand bird, fair comb and earlobes, nice neck, nice back, good tail, splendid in color; 2nd, another good one close up to 1st; 3rd, another nice one. Hens; 1st, the best I ever saw, an easy winner; 2nd, seemed to me to be a daughter, and about as good; 3rd, too dark and coarse in pencilling. Cockerels; 1st, a nice one, good head, comb and earlobes, with a nice back, one sickle feather nice, the other a little too white at the roots, had a good pair of wings; 2nd, a good one, but had the misfortune to have his comb frozen which spoiled his appearance, he was hardly so good in wings as 1st, but better in tail; 3rd, another nice one, but too young to show well, tail was light. Pullets; 1st, had a nice comb, good lobes, good hackle and grand tail, well pencilled, good pair of wings; 2nd and 3rd, not much difference between them, both good, well pencilled, but a little too young to show well.

Golden Spangled Hamburgs. Cocks; 1st, a grand bird with splendid top color, nice comb and fair earlobes, well spangled breast and very little white tipping; 2nd, another fair bird but a little off on comb and earlobes, nice top color but a little off on breast; 3rd, a mate for 2nd. Hens; 1st, a good one and an easy winner, fair comb, good lobes, nice neck, well spangled back, good shaped tail, well spangled breast; 2nd, another good one, but not so good in comb, nice spangled back, but not so good on breast as 1st, 3rd, fair, not so good in comb or lobes, nice neck, good spangled back, nice color, good shaped tail, a little too much white tipping on breast. Cockerels; 1st, in spendid condition, good comb, nice lobes, splendid top color, grand tail, well spangled breast, and very little white tipping; 2nd, another nice bird, not so good in comb or earlobes, splendid hackle, good back, nice tail, but a little too much white tipping on breast; 3rd, another nice one, a little off on comb and earlobes, a little dark on top color, fair breast, but not in good condition; balance of class all fair. Pullets; 1st, a grand one, nice comb and lobes, good neck, splendid spangled back of good golden bay, with a good spangled breast of the right shaped spangles, a little young but will make a grand hen; 2nd, another good one but not so rich in color, until it gets more age; 3rd, a fair bird, well spangled back, nice type, but not so rich in color.

Silver Spangled Hamburgs. Cocks; 1st, an easy winner, fair head, good comb and lobes, a nice well spangled neck, good clean spangled back, without any mossing, a grand tail, splendid breast of the right shaped spangle; 2nd, another good one, but hardly fit to show as his tail was not all in, grand in color, splendid shape and well spangled; 3rd, another nice one, but not so well spangled as 2nd, a little creamy, otherwise good. Hens; 1st, in splendid shape and one of those nice clean spangled ones without any mossing; 2nd, another good one, nice head and comb, grand spangles, fine in color; 3rd, a better one but her tail was not out enough to show. Cockerels; 1st, a grand bird but a little out of condition; the next two best ones I had to leave out for feathers between the toes; 2nd, and

3rd, both fair birds. Pullets; 1st, and easy winner, splendid head and comb, good neck, grand spangled back as green as a bottle, with a well spangled breast; 2nd and 3rd, not much between the two.

Black Red Game Bantams. Cocks; 1st, a nice stylish little fellow, good in color with a good pair of shoulders, stood well up on a nice pair of legs, but a little mottled on breast. Hens; 1st, a good one, nice long head and reach neck, short body and good tail; 2nd, another good one, but not hardly so good in head or so long on neck, good short back, nice tail; 3rd, close up to 2nd. Cockerels; 1st, nice head, grand in color, stood well up on a good pair of willowed legs; 2nd, another good one, but not so good in station as 1st; 3rd, not so good in head but close up to 2nd. Pullets; 1st, a little beauty, good head, nice long neck, good pair of shoulders, short back, tail about the right height, a good pair of legs; 2nd, a fair bird, not so good in head nor so good in station; 3rd, a good mate for 2nd.

Duckwing Game Bantams. Cocks; 1st, splendid bird, nice long head, good hackle, nice short back, good pair of shoulders, splendid shaped tail, but a little long; 2nd, another fair one, lacked in station. Hens; 1st and 2nd, both good, and two good mates. Cockerels; 1st, nice head, good neck, good colored back and short, with a good pair of shoulders, tail of about the right style; 2nd, a good mate for 1st; 3rd, a nice little fellow of good station, nice head, stood well upon a good pair of legs, but he was nearer a silver grey than a golden; there was another nice one, splendid bird with a grand pair of shoulders, good every way but carried his wings too loose, I think he must have been overtrained. Pullets. 1st and 2nd, both good and looked well, little difference between them.

Pyle Game Bantams. Cocks; 1st, a nice bird, good head, nice back, good color, stood well up. Hens; 1st, fair, but too light on breast; 2nd, not much difference between them. Cockerels; 1st, good stylish one, nice head, good neck, nice short back, good pair of shoulders and a grand pair of yellow legs; 2nd, not much difference. Pullets; 1st, nice head, good neck, short back, but a little large; 2nd, a good mate.

A. O. V. Game Bantams. Cocks; 1st, a Birchen and about as neat as you could get one, nice short back, with a good pair of shoulders, stood well up on a grand pair of legs, grand laced breast; 2nd, a nice little Old English Game. Hens; 1st, a Birchen, nice long head, good neck, splendid back, good pair of shoulders, grand laced breast; 2nd, Old English, a very nice little hen. Cockerels; 1st, a Birchen, nice head, good long neck, nice short back, a good pair of shoulders, good tail, grand laced breast; 2nd, another good Birchen, good head, nice neck, short back, good tail, nice laced breast, stood well up on a good pair of legs; 3rd, close up. Pullets; 1st, a Birchen, nice head, good neck, nice short back, good pair of shoulders, carried a nice tail, grand laced breast; 2nd, another good Birchen, fair head, good neck, nice back, grand laced breast; 3rd, a Birchen and close up to 2nd.

Golden Sebright Bantams. Cocks; 1st, a nice little fellow, good comb, nice neck, with splendid laced back and breast, good tail; 2nd, a fair bird, but a little coarser in lacing; 3rd, fair. Hens; 1st, nice, well laced all through and carried a good tail; 2nd, another fair hen, but not so well laced as 1st; 3rd, close up to 2nd. Cockerels; 1st, nice head and comb, well laced back; 2nd, another fair bird, a little heavier on lacing. Pullets; 1st, a nice well laced one with a good tail; 2nd, another good one, but not so good in tail as 1st; 3rd, close up to 2nd.

Silver Sebright Bantams. Cocks; 1st, a good one, nice comb, good neck, well laced back and clear tail; 2nd, another fair bird, not so well laced on back nor so good in tail; 3rd, fair. Hens; 1st, splendid in shape, with a grand tail, narrow lacing on back and breast; 2nd, in poor shape and a half-moon breast. Cockerels; 1st, nice head, well laced neck, good back, clear tail; 2nd, another fair bird. Pullets; 1st, a good one, nice head, good neck, well laced back, clear tail; 2nd and 3rd, both close up.

White Rose Comb Bantams. A small class but all good.

Black Rose Comb Bantams. Cocks; 1st, a nice one, good shape, grand tail, splendid in color; 2nd and 3rd, both good. Hens; 1st, nice head, good comb, good earlobes, splendid color all over, good tail; 2nd, another nice one, but lacked a little in color to 1st; 3rd, close up. Cockerels; 1st, splendid comb, good lobes, grand in color, with an extra fine tail; 2nd, a little behind in tail and lobes: 3rd, a mate for 2nd. Pullets; 1st, 2nd and 3rd, all good, not much difference in them.

Buff Cochin Bantams. Cocks; 1st, fair bird, good color; 2nd, too high in color. Hens; 1st and 2nd, not much choice between them; 3rd, a little off in color. Cockerels; 1st, a nice shaped little fellow, even in color; 2nd and 3rd, both a little dark in color. Pullets; 1st, a good mate for 1st cockerel, nice even color, good shape; 2nd and 3rd, not much between them.

White Cochin Bantams. Cocks; 1st, a fair bird. Hens; 1st and 2nd, both nice. Cockerels; 1st and 2nd, both good; also Pullets.

Partridge Cochin Bantams. A small class and quality not up to much.

Black Cochin Bantams. Cocks; 1st, nice little comb, good short low neck, short back, good cushion, carried a good tail, grand leg and toe feathering; 2nd and 3rd, close up, not much between the whole three. Hens; 1st, a good one, nice head and comb, good short neck, grand in color, good leg and toe feathers: 2nd, another fair one, but a little large, splendid in color; 3rd, a little off in color, otherwise good. Cockerels; 1st, a good mate for 1st cock; 2nd, another fair one, but not so good in leg and toe feathers. Pullets; 1st, a Cochin all over, splendid shape, good color, fine cushion; 2nd, another nice one, but a little too large; 3rd, a nice one, but too young to show well.

Light Brahma Bantams. A small class. 1st Cockerel fair and 1st, 2nd and 3rd Pullets just fair.

White Booted Bantams. A small class. 1st cock, 1st hen and three pullets all fair.

Black-tailed Japanese Bantams. Cocks; 1st, a good shaped one, with a grand tail, an easy winner; 2nd, another good one, lacked in tail to 1st. Hens; 1st, nice, close down to the ground, carried a good tail; 2nd, a fair one. 1st Cockerel and Pullet both good.

A. O. V. Japanese Bantams. Cocks; 1st, a grey, Japanese style all over, had a grand tail; 2nd, a nice white one; 3rd, not much between him and 2nd. Hens; 1st, a white one, nice, good shape, carried a grand tail, all Japanese; 2nd, another good one; 3rd, close up. Cockerels; 1st, a nice little white. Pullets; 1st, a nice white one, good head, nice short back, good tail; 2nd, another good one, but not so close to the ground; 3rd, a little beauty, next day when I saw her I thought her about as good as I ever saw, but when I was judging she was just put into the coop and would not stand up but lay down all the time and I could not get her on her feet.

A. O. V. Bantams. A small class of Polish but all good.

RICHARD OKE, LONDON.

White Wyandottes. Cocks; 1st, neat comb and head, good shape back, tail well put on, pure in plumage; 2nd, another shapely bird, good full breast, not quite so pure in color; 3rd, fails a bit in shape. Hens; 1st, neat head, good eye, nice shaped back, round full breast with a well spread tail, pure in quill and feather; 2nd, another good one, not far behind, but lacked finish to the one ahead; 3rd, nice shape, fails a bit in color. Cockerels; 1st, good head and eye, nice arched neck and good shaped back, put down in nice fit; 2nd, another good one of about the same type, pure in color; 3rd, lacked breast shape, still a good cockerel. Pullets; 1st, nice and cobby, neat head, tail well put on and shown in nice condition; 2nd, about the right stamp and not much between; 3rd, another good one, fails a bit in shape of tail.

Black Wyandottes. A very good class in color and type, especially the 1st and 2nd winners, hardly up in leg color.

Silver Pencilled Wyandottes. A small class. Cocks; 1st, nice colored neck and back, good in breast color; 2nd, fails a bit in color of breast. Hens; 1st and 2nd, nicely pencilled, the former best in color. Cockerels and Pullets, small class with good quality.

Golden Pencilled Wyandottes. A small class. Only one cock, fair shaped comb, good neck and saddle color, nice wing and good breast lacing. Hens; 1st, an easy win, good shape and nice lacing throughout. Cockerels; 1st, neat head, good lacing throughout; 2nd, close up, fails a bit in lacing on fluff. Pullets; 1st, neat comb, good eye, nicely laced on breast, free from frosting; 2nd and 3rd, two good pullets and not much between them.

There were two classes provided for pens, i.e., solid and parti-colored. In the former class, whites winning 1st and 2nd, with buffs 3rd in the parti-color. Silver Laced carried off the honors. There was a real good pen of Partridge, but the male bird was shown in bad health. There was a nice pen of Partridge chicks but were hardly matured enough for present company.

S. C. White Leghorns. I think the largest class in the show, and all the winners were put down in excellent fit. Cocks; 1st, neat comb of nice texture, good face and lobe, nice arched neck and beautiful sweep of back with a good full tail carried at about the right angle and splendid color of plumage throughout; 2nd, another good one, neat comb and head, a bit blemished in one lobe, shown in nice fit; 3rd, another good cock in all sections, failed at bit in carriage of tail. Hens; 1st, neat head, comb well put on, good color eye, nice shaped neck, good length of back, tail well set on, pure in color; 2nd, another good one, shown in nice fit, fails a bit in length of back to 1st; 3rd, neat head, pure lobes, nice shaped body, good carriage of tail, hardly so pure in color. Cockerels; 1st, neat head, nice shaped neck, nice sweep to back, tail well put on, pure in color; 2nd, fails a little shape of breast; 3rd, not as good in comb, bit coarser, good shape and length of feather. Pullets; 1st, the counterpart of 1st hen, neat and shapely throughout; 2nd and 3rd, quality good in all sections.

S. C. Brown Leghorns. Cocks; 1st, good, fair comb, well striped neck, and saddle of about the right shade of color, good in his black, nice carriage of tail; 2nd, another good cock, hardly shown in as good fit; 3rd, close up. Hens; 1st and 2nd, not much between them, 1st best shade of back color, free from shafting; 3rd, fails a bit in color. Cockerels; 1st, good head, nice striped neck and saddle;

2nd, another about the same quality; 3rd, not so even in his top color. Pullets; 1st, neat comb, good neck, fine in strippling, about the right shade of color of back; 2nd and 3rd, close up.

R. C. Brown Leghorns. A very nice class.

S. C. Black Leghorns. A large class. Cocks; 1st, neat head, good color throughout, shown in nice feather; 2nd, another good one, fails to 1st on color. Hens; 1st, neat and good color; 2nd, coarse in comb, good color and best of legs and feet; 3rd, more the style of 1st, but not so good in color. Cockerels; 1st and 2nd, stood out well, being put down in nice fit. Same may be said of pullets.

S. C. Buff Leghorns. A good class. Cocks; 1st, nice even top color, wins well; 2nd, another good one, not as even in color. Hens; 1st, good head, top color bit uneven; 2nd, close up; 3rd, fails evenness of color. The cockerel and pullet classes also contained nice quality, the smoothest colored one in the class being a pullet.

A. O. V. Leghorns. Was composed of fair quality of R. C. Whites and Buffs.

S. C. Black Minorcas. Generally a warm class here, this year's exhibit teeming with quality. Cocks; 1st, good firm comb well put on, good lobes, good length of back and nice carriage of tail, a big lofty fellow, nice color; 2nd, another good cock of nice quality, fails a bit in size and head points; 3rd, close up. One or two cocks in this class having been frosted spoiled their chances here. I noticed another, apparently of good quality, gone off on legs, apparently overshown. Hens; 1st, a real topper, nice head, good comb, good lobes, nice length of back, good shaped tail, excellent color throughout; 2nd and 3rd, massive big hens of the right type, fail to 1st on color. Cockerels; 1st, one of the best I have seen this winter, beautiful comb, not overly large, pure lobes and a Minorca all over, grand shaped back and tail, will take some stopping; 2nd, another good one, blemished in wattles, but a Minorca all over; 3rd, good in all points, failed a bit in size, in fact there were several good birds outside the money that were extremely close up and could pull down the money outside of probably one or two shows. Pullets; 1st, nice head piece, good type, pure color, free from purple; 2nd and 3rd, very close up, plenty length of back, well up on legs, hardly as good carriage of tail.

R. C. Black Minorcas. A rather small class but good quality.

S. C. White Minorcas. A nice class. Unfortunately some of the most typical had been frosted and showed to poor advantage, 1st cock, hen, cockerel and pullet stood out well.

Buff Orpingtons. Cocks; 1st, fair comb and head, round full breast, good shaped back, nice golden buff throughout, blending well together, good bone; 2nd, another real good one, nice body shape, fails a trifle top color; 3rd, good color but lacks shape of body to those in front. Hens; 1st, good head, nice full breast, good length of back, tail well put on, one nice level shade top color; 2nd, another typical hen, a shade lighter in color and a bit peppery in tail; 3rd, another real good one, hardly so uniform in top color. Cockerels; 1st, a god one in all sections, grand color, his only fault being a trifle long in shank; 2nd and 3rd, very similar and not much between them. Pullets; 1st, neat head, good shaped comb, nice eye, fine type body, a trifle strong in color but very uniform; 2nd, another grand type and close up, not so pure in tail; 3rd, another real good pullet, fails evenness of color and tail.

Black Orpingtons. Not so numerous as former years and outside the winners were not of exceptional merit. 1st cockerel and pullet being well forward, typical in shape and nice color.

GEORGE ROBERTSON, OTTAWA.

Buff Plymouth Rocks. Fairly numerous. Cock birds quite an entry but disappointing in quality. Cocks; 1st, an easy winner, standing well ahead; 2nd and 3rd, just fair. Hens; 1st, nice type, fair color; 2nd, nice type and color, some dead feathers that spoiled the surface, and not so sound in color of tail as 1st; 3rd, good type, not so even in color. Cockerels; 1st, rather small and weak in breast shape, absolutely sound in color of the most lovely rich shade; 2nd, good type, light in eye, and although even in color, altogether too light; 3rd, fair type, strong in color of wing, and not so sound as winners. Pullets; 1st, good type, fair color; 2nd, fair type and color, rather strong; 3rd, not so good on wing bow nor so good in type.

Silver Wyandottes. A couple of cock birds neither of which were in the best of feather. Hens, some grand ones, especially 1st and 2nd. 1st, a beauty, good in type, with grand lacing and clear open centres. Some nice stuff in cockerels and pullets.

Partridge Wyandottes. Some grand birds. Cocks; 1st, grand in type, clean in color, would prefer him a shade darker in his red; 2nd, another beauty, rich in color, good in type, not so clean as 1st; 3rd, also good, just falling short of winners. Hens; 1st, good type, rich in color, well laced; 2nd, good type, not quite so rich in color; 3rd, grand type not as rich in color nor so well laced. Cockerels; 1st, good in both type and color; 2nd, another good one, but younger; 3rd, not so clean as the winners. Pullets; 1st, rich color, good type and well laced; 2nd and 3rd, also good, just losing to winner.

Columbian Wyandottes. Cocks; 1st, good in type, clean in color, an easy winner; 2nd not so good in type nor so clean in color; 3rd not so good in black points as the winners. Hens and pullets the winners all nice birds of good type and fair color. Cockereels; 1st, nice type, could be larger, strong in black points; 2nd, a good bird; 3rd, not nearly so good as the other winners.

Buff Wyandottes. Cocks; 1st, an easy winner, good type, even color; 2nd, not so rich in color as 1st, but a nice even bird; 3rd, good type, rather strong across wing bow. Hens; 1st, pen mate to 1st cock, large, of good type and even in color, though a little pale; 2nd, good type, a little strong in color; 3rd, good type, a little weak in color, and not so even. Cockerels; 1st, nice shape and nice rich, even surface; 2nd, not quite so good in type nor so rich in color; 3rd, nice type, a shade strong in color. Pullets; winners all of good type and fair color.

Black Javas. Cocks; 1st, a good one, rich in color and of good type; 2nd, not so good in color; 3rd, close up. Hens; 1st and 2nd, fair in shape and color; 3rd, good shape, weak in wing color. Cockerels; 1st, good both in shape and color; 2nd, not quite so good in shape; 3rd, fair shape and color. Pullets; 1st, good in both shape and color; 2nd, also good.

Mottled Javas. Small class, similar in quality to that seen at the Ontario.

R. C. Rhode Island Reds. Cocks; 1st, wins handily, good type strong rich even color; 2nd, a good bird, little rough in head, not so good type, nor so rich in color as the winner. Stands well ahead of 3rd, which is fair. Hens; 1st, fair type, fairly even, red surface and sound under; 2nd, good type, very rich even surface, but does not handle out as well as might be; 3rd, fair. Cockerels; 1st, fair type, rich even color and sound, well ahead; 2nd and 3rd, fair birds. Pullets; 1st, an easy winner, large well developed, of good type and color. Her pen mate was very similar, but was so bad in lobes that I had to pass her; 2nd, younger, of fair type, rich even color, but lacked lustre; 3rd, very similar but not quite so even as 2nd.

S. C. Rhode Island Reds. Cocks; 1st, strong in type and rich even color, an easy winner; 2nd, lacks the type of 1st, and not so even in color as the other winners. Hens; 1st, fair type, shade dark but sound; 2nd, good even sound color, shade light and not so good in type; 3rd, good color, rough in comb. Cockerels; 1st, rich even color; 2nd, good color, not quite so even and rough in head; 3rd, not so even in color as the other winners; 4th, very sound even color, feathers in one wing badly broken, and too much Orpington in type. Pullets, an easy winner, large, of good type and even rich color; 2nd and 3rd, both nice birds but younger, without the development of 1st, nor so rich in coloring.

S. G. Dorkings. Cocks; 1st, good type, nice clean color; 2nd, loses on type, rich clean color; 3rd, good type, lacks condition. Hens; 1st and 2nd, good type, could be cleaner in color; 3rd, neither as good in type or color. Young stock fair.

Colored Dorkings. Cocks; 1st, grand in type; 2nd, nice clean bird, but not as good in shape; 3rd, rough. Hens; 1st, a nice one, in both type and color; 2nd, good type, not as sound in color; 3rd, fair. Cockerels; 1st, a grand bird, good all over; 2nd, another one of the same type, but younger. Pullets; 1st, a good one in both type and color; 2nd, younger but of the same kind; 3rd, not so rich in color or so typical in shape.

White Dorkings. Cocks; 1st, a grand bird in every way; 2nd, a nice one but not so good in type. Hens; 1st, grand type and large; 2nd, also a grand one in both type and color, but rather ragged on account of moult. Cockerels; 1st, good type, clean color; 2nd, good type, loses on color; 3rd, clean color, good type, but small. Pullets; 1st, a good one in both type and color; 2nd and 3rd, good type and white but young.

Houdans. Cocks; 1st, grand in type, little too much white; 2nd, rich in color but very dark, loses to 1st on type; 3rd, good color, loses on type. Hens; 1st, mate to 1st cock and same description; 2nd, nice type and color; 3rd, another good one. Cockerels; 1st and 2nd, two grand ones, strong in type and rich in color, 1st being a little better in both; 3rd, fair. Pullets; 1st, 2nd and 3rd, all good in both shape and color.

Creve Coeurs. Cocks; 1st, a beauty in both shape and color; 2nd, good but falling short of winner. Hens; 1st, a good one in both type and color; 2nd, also nice; 3rd, good type, fails in color. Young stock of the same quality.

La Fleche. Cocks; 1st, a grand bird in both type and color; 2nd, also good; 3rd, nice, but high in tail. Hens; 1st, 2nd and 3rd, all good, very little between them. Cockerels and pullets all good.

Red Caps. Cocks; 1st, a good one, clean in color, good in type, with a true Red Cap comb, wins handily; 2nd, not so good in type or as clean in color; 3rd, good color, rough in head. Hens; 1st, fairly clean color, good type; 2nd, close up; 3rd, good type, loses on color. Cockerels; 1st, good type and comb and clean color; 2nd, very similar to 1st; 3rd, also good but not so good in color as the winners. Pullets; 1st, a grand one, clean rich, nut brown, ground color with the proper shaped spangle, good type and comb, by long odds the best female shown; 2nd, nice clean color, but too light in color, spangle too crescentic in shape, good type; 3rd, not so clean in color.

A. O. V. Fowls. 1st cock, Sultan; 1st hen, Cuckoo Dorking; 1st cockerel, S. Campine, a nice clean colored bird; 1st pullet, S. Campine, nice one.

APPENDIX

PRIZE WINNERS AT ONTARIO PROVINCIAL WINTER FAIR

Guelph, December 11th to 15th, 1911.

HORSES.

Clydesdale Stallions, foaled previous to January 1st, 1908. Fifteen entries.

1—Hyacinthus (imp.) [11251] (13531), bay, white hairs through coat, one side of nostril and one fore foot white, hind legs white nearly to hocks, foaled May 8th, 1904, bred by James Argo, Crannabog, Rothie-Norman, Aberdeenshire, Scot. Imported and exhibited by Smith & Richardson, Columbus, Ont.; sire, Royal Edward [6141] (11495); dam, Fortune's Favorite, [17220] (14136).

2—Marathon [12610] bay, with gray hairs, blaze nigh hind leg black, others white, foaled April 27th, 1907, bred by Stephen Mitchell, Sterlingshire, Scot. Exhibited by T. H. Hassard, Markham. Sire, Marcellus [4683.] Dam, Lady Carruchan 22542.

3—Edward Darnley (imp.) [9609] (13461) bay, face, nigh for and both hind legs and off hind ankle white, foaled June 6th, 1904, bred by Strichen Trustees, Strichen, Aberdeenshire, Scot. Imported in Aug. 1911, and exhibited by the Graham Renfrew Co., Ltd., Bedford Park, Ont. Sire, Royal Edward [6141] (11495). Dam, Dora B. Colbeck [8534] (11205).

4—Homestake (imp.) [9586] (14943), bay, with white hairs throughout coat, white on face, hind legs and off fore leg white, foaled May 4th, 1906, bred by Wm. Hogarth, Plane Three House, Beamish, Northumberland, England. Exhibited by John A. Boag & Son, Queensville, Ont. Sire, Silver Cup, [5653] (11184). Dam, Helene [9223] (14707).

5—Gartly For Ever (imp.) [8412] (14131), brown, stripe, off fore ankle white, outside of near fore ankle and hind legs white, foaled May 7th, 1906, bred by Alex. MacG. Mennie, Brawlandknowes, Gartly, Aberdeenshire, Scot. Imported in July, 1908, by Robt. Ness, Howick, Que. Exhibited by W. J. Howard & Son, Concord. Sire, Everlasting [5346] (11331). Dam, Gartly Baroness [15617] (51177).

6—Gay Gordon [12608], brown, strip, nigh fore and hind legs white, foaled April 15th, 1907, bred by Duke of Richmond, Fochabers, Scot. Exhibited by T. H. Hassard, Markham. Sire, Sir Hugo 4923. Dam, Rose 24622.

7—Earl of Brackley (imp.) [9157] (13457), dark brown, stripe, hind legs white, foaled May 24th, 1905, bred by William Tod, East Brackley, Kinross, Scot. Imported in February, 1908, and exhibited by Thos. Mercer, Markdale, Ont. Sire, Blackband [6194] (11623). Dam, Miss of Manorleys [17242] (15850).

Clydesdale Stallions, foaled in 1908. Twenty-one Entries.

1—Bydand (imp.) [12482] (15165), black, white face, black snip on nose, fore legs black, with little white on front of off knee and on back of nigh knee, hind legs white, foaled June 13th, 1908, bred by George Stewart, Haulkerton Mains, Laurencekirk, Kincardineshire, Scotland. Imported and exhibited by the Graham Renfrew Co., Ltd., Bedford Park, Ont. Sire, Baron of Bucklyvie [5353] (11263). Dam, Natalie (21859).

2—Lord Cullen (imp.) [12613], bay strip, hind legs white, foaled June 12th, 1908, bred by Countess Dowager of Bedfield, Banff, Scot. Exhibited by T. H. Hassard, Markham, Ont. Sire, Up-To-Time [3552]. Dam, Betsy Macilroy [21790].

3—Golden Favourite (imp.) [11456] (15547), black, face and legs white, foaled May 18th, 1908, bred by Robert Buchanan, Livingstone Mill, Mid Calder, Mid Lothian, Scotland. Imported and exhibited by John A. Boag & Son, Queensville, Ont. Sire, Golden Pride, [10603] (13013). Dam, Lily of the Mill [9172] (17418).

4—Lord Hugo (imp.) [12449] (15291), brown, face and hind legs white, foaled on May 20th, 1908, bred by Andrew Mitchell, Barcheshire, Kirkcudbright, Scot. Imported in July, 1911, by Smith & Richardson, Columbus, Ont. Sire, Sir Hugo [4923] (10924). Dam, Lady Meadowbank, (19002).

5—Milton's Last (imp.) [12487] (15955), bay, face and legs white, foaled April 27th, 1908, bred by John Alexander McDowall, High Milton, Port William, Wigtownshire, Scotland. Imported and exhibited by the Graham Renfrew Co., Ltd., Bedford Park, Ont. Sire, Baron's Pride [3067] (9122). Dam, Lady Fraser [31593] (17892).

6—Baron Daar (imp.) [12574] (15132), bay, face and off hind leg white, foaled April 28th, 1908, bred by Captain John Hope, St. Mary's Isle, Kirkcudbright, Scotland. Imported and exhibited by Thos. Mercer, Markdale, Ont. Sire, Baron's Pride [3067] (9122). Dam, Montrave Lorette [10438] (15561).

7—Theodore (imp.) [11688] (15578), bay, white hairs through coat, face and hind legs white, foaled May, 1908, bred by Robt. McCulloch, Kepdarroch, Gargunnock, Stirlingshire, Scot. Imported in August, 1910, and exhibited by Crawford & McLachlan, Thedford, Ont. Sire, Royal Edward 6141 (11495). Dam, Flashwood's Princess, 19198 (19873).

Clydesdale Stallions foaled in 1909. Twenty-three Entries.

1—Scottish Kipling (imp.) [12491] (16240), very dark brown, white face with spot under jaw, fore legs black with spots behind knees, hind legs white, foaled May, 1909, bred by Frank Calvert, Violetbank, Nobelhill, Dumfries, Scotland. Imported and exhibited by the Graham Renfrew Co., Ltd., Bedford Park, Ont. Sire, Scottish Crest [8643] (13182). Dam, Lady Kipling (23499).

2—Earl Dudley (imp.) [12453] (16236), bay, white hairs through coat, face and legs white, foaled May 12th, 1909, bred by John Dick, Park of Kier, Dunblane, Perthshire, Scotland. Imported and exhibited by Smith & Richardson, Columbus, Ont. Sire, Royal Edward [6141] (11495). Dam, Princess Favourite (23586).

3—Earl Dunragit (imp.) [12389] (16221), bay, face and legs white, foaled April 30th, 1909, bred by J. C. Cuninghame, Dunragit, Wigtownshire, Scotland. Imported and exhibited by John A. Boag & Son, Queensville, Ont. Sire, Hiawatha Godolphin [6708] (12602). Dam, Belle of Broadgate [17837] (13402).

4—Pirate Prince (imp.) [11781], brown, off fore and hind pasterns white, white face, foaled April 6th, 1909, bred by James Duncan, Coupar Angus, Perthshire, Scotland. Exhibited by T. H. Hassard, Markham, Ont. Sire, Baron O'Dee [5369]. Dam, Maid of Ryehill [24630].

5—Dunure Chieftain (imp.) [12450] (15805), black, face and legs white, foaled May, 1909, bred by Frank Henderson, Grinsdale, Carlisle, Cumberland, England. Imported and exhibited by Smith & Richardson, Columbus, Ont. Sire, Baron of Buchlyvie [5353] (11263). Dam, Jess of Grinsdale (23811).

6—Ben Eden (imp.) [12612] brown, with white hairs, white face, off fore leg and hind legs white, foaled May 19th, 1909, bred by Wm. L. Toms, Benvie, Dundee, Scotland. Exhibited by T. H. Hassard, Markham, Ont. Sire, Dunedin [10343]. Dam, Mary of Benvie [20640].

7—Predominant (imp.) [12490] (16239), light bay, face and legs white, foaled May 18th, 1909, bred by J. & R. Hewetson, Balterson, Newton-Stewart, Wigtownshire, Scotland. Imported and exhibited by the Graham Renfrew Co., Ltd., Bedford Park, Ont. Sire, Mamilius [12480] (14264). Dam, Lady Cook (23819).

Clydesdale Stallions foaled in 1910. Six Entries.

1—Craigie Chattan (imp.) [12387], bay stripe, hind legs white, foaled June, 1910, bred by T. B. Schofield, Perthshire, Scotland. Exhibited by T. H. Hassard, Markhan, Ont. Sire, Chattan Again [10892]. Dam, Alpha [28080].

2—Kelvin Pride (imp.) [12454] (16237), bay, face, off fore and hind legs white, foaled May 30th, 1910, bred by Matthew Smith, Leathes, Castle Douglas, Kirkcudbrightshire, Scotland. Imported and exhibited by Smith & Richardson, Columbus, Ont. Sire, Baron Kelvin, [12462] (13991). Dam, Lily of Leathes [7480] (15802).

3—Auchencairn (imp.) [12578] (15721), bay, face and legs white, foaled May 5th, 1910, bred by Wm. Cannon, Mains of Collin, Auchencairn, Castle Douglas, Scotland. Imported and exhibited by Thos. Mercer, Markdale, Ont. Sire, Prince Sturdy [2881] (10112). Dam, Rosie of Collin (26175).

4—King's Courtier (imp.) [12556] (16256), bay face and nigh hind leg white, foaled April 14th, 1910, bred by McMaster Blairbury, Port William, Wigtownshire, Scotland. Imported and exhibited by Crawford and McLachlan, Thedford, Ont. Sire, Everlasting [5346] (11331). Dam, Maggie of Blairbury (28418).

Clydesdale Mares foaled previous to January 1st, 1909. Eleven Entries.

1—Sally of Burnbrae (imp.) [13528] (Vol. 27. P. 293 S.), bay, ratch on face, near fore and hind legs white, foaled 1904, bred by Hugh Stirling, Burnbrae, Symington, Ayrshire, Scotland. Exhibited by W. H. Mancell, Fletcher, Ont. Sire, Montrave Ronald [5328] (11121). Dam, Maggie of Burnbrae [8210] (16384).

2—Alpha (imp.) [26744], dark brown, strip, hind legs white, foaled May 19th, 1906, bred by David C. Erskin, Forfarshire, Scotland. Exhibited by T. H. Hassard, Markham, Ont. Sire, Royal Blend [6041]. Dam, Rose Linlethen [26360].

3—Lady Shadwick [24896] (25962), dark bay, stripe, hind legs white, foaled April 29th, 1908, bred by Jos. Shadwick, Fieldhead, Silloth, Cumberland, England. Exhibited by Wm. Parkinson, Jarvis. Sire, Specialty [6966] (11547). Dam, Jeanie Shadwick [24889] (25958).

4—Royal Rosie (imp.) [23171] (25216), bay, spot on face, white legs, foaled 1908, bred by James McLaren, Alton, Stirling, Stirlingshire, Scotland. Imported by Smith & Richardson, Columbus. Exhibited by C. A. Towriss, Riverbank, Ont. Sire, Royal Edward [6141] (11495). Dam, Rose of Bandeath [9308] (14301).

5—Parthenia (imp.) [12744] (Vol. 28 p. 328 S.), brown, stripe, off hind leg white, with a very little white on near hind leg, foaled June, 1905, bred by Wm. Neilson, Haning Valley, Linlithgrow, Scotland. Exhibited by Chas. E. Meadows, Maplewood, Ont. Sire, Drumflower [3833] (10537). Dam, Cathie of Haining Valley [12746] (16980).

6—Craigie Ida (imp.) [26745], brown, star and ratch, off fore and hind feet white, foaled May 4th, 1907, bred by James Young, Kincardinshire, Scotland. Exhibited by T. H. Hassard, Markham, Ont. Sire, Baron Rothschild [9608]. Dam, Miss [27469].

7—Dophne of Cairnbrogie (imp.) [23568] (25438), bay, face and three feet white, foaled May, 1907, bred by Jeanie Mair Davidson, Mains of Cairnbrogie, Old Meldrum, Aberdeenshire, Scotland. Imported by the Graham Renfrew Co., Bedford Park, Ont. Exhibited by C. A. Towriss, Riverbank, Ont. Sire, Paymaster, [10048] (12268). Dam, Rose [23014] (19359).

Clydesdale Mares, foaled in 1909. Eighteen Entries.

1—Iron Duchess (imp.) [26224] (28202), brown, white hairs through coat, face and hind legs white, foaled June 4th, 1909, bred by Wm. Nicholson, Bombie, Kirkcudbright, Scotland. Imported and exhibited by Smith & Richardson, Columbus, Ont. Sire, Iron Duke [9892] (13535). Dam, Lady Douglas of Bombie (24119).

2—Nannie Gemmell (imp.) [26095] (28096), dark chestnut, ratch, nigh hind leg white, others dark, foaled May 8th, 1909, bred by Daniel Gemmell, Kerrytonila, Rothesay, Buteshire, Scotland. Imported and exhibited by John A. Boag & Son, Queensville, Ont. Sire, Ruby Pride [7201] (12344). Dam, Nanny of Kerrytonila [10788] (13438).

3—Royal Eve (imp.) [26242] (28195), brown, face and hind legs white, foaled May 12th, 1909, bred by Jas. Adam, Muirpark, Denny, Sterlingshire, Scotland. Imported and exhibited by Smith & Richardson, Columbus, Ont. Sire, Royal Edward [6141] (11495). Dam, Stella [17080] (16447).

4—Bessie Banker (imp.) [26227] (28180), bay, stripe, fore feet black, others white, foaled May 3rd, 1909, bred by James Beddie, Banks, Strichen, Aberdeenshire, Scotland. Imported and exhibited by Smith & Richardson, Columbus, Ont. Sire, Crossrigg [12461] (13426). Dam, Banks of Strichen Cathie (19112.)

5—Barbara 3rd of Forglen (imp.) [26287] (28280), bay, face and hind legs white, four legs black with spot on off leg, foaled June 19th, 1909, bred by Sir George Abercrombie, Foreglen, Turriff, Aberdeenshire, Scotland. Imported and exhibited by the Graham Renfrew Co., Bedford Park, Ont. Sire, May King (imp.) [9899] (13098). Dam, Barbara of Foreglen (13335).

6—Kate Beddie (imp.) [26235] (28188), bay stripe, off hind foot white, others black, foaled May 16th, 1909, bred by James Beddie, Banks, Strichen, Aberdeenshire, Scotland. Imported and exhibited by Smith & Richardson, Columbus,. Ont. Sire, Crossrigg, [12461] (13426). Dam, Banks of Strichen Catharine (19113).

7—Cross Lass (imp.) [26288] (28281), bay, stripe, hind legs white half way to hocks, foaled May 1st, 1909, bred by John Milne, Upper Crichie, Aughnagatt, Aberdeenshire, Scotland. Imported and exhibited by the Graham Renfrew Co., Ltd., Bedford Park, Ont. Sire, Crossrigg [12461] (13426). Dam, Nellie of Greenhill (13260).

Clydesdale Mares, foaled on or after Jan. 1st, 1910. Seven Entries.

1—Flora Steel (imp.) [26091] (28091), brown, face, off fore foot and pastern and hind legs white, foaled May 7th, 1910, bred by Wm. Nicholson, Bombie, Kirkcudbright, Scotland. Imported and exhibited by John A. Boag & Son, Queensville, Ont. Sire, Iron Duke [9892] (13535). Dam, Flora of Bombie [14993] (15719).

2—Miss Fernie (imp.) [26225] (28203), bay, white hairs through coat, face and legs white, foaled 1910, bred by David Fernie, Lochside, Couper-Angus, Perthshire, Scotland. Imported and exhibited by Smith & Richardson, Columbus, Ont. Sire, Equerry (imp.) [9852] (13465). Dam, Pride of Lochside (28201).

3—Molly O'Malley (imp.) [26459] (28439), bay, stripe, white legs, foaled 1911, bred by Edward J. O'Malley, Woodlands, Raheny, Dublin, Ireland. Imported and exhibited by Thos. Mercer, Markdale, Ont. Sire, Royal Review [11005] (16036). Dam, Lady Moray (imp.) [26635] (16715).

4—Mary Sweet (imp.) [26094] (28094), brown, face and hind legs white, foaled May 12th, 1910, bred by Mrs. Mary McAllister, Meikle, Kilmory, Rothesay, Buteshire, Scotland. Imported and exhibited by John A. Boag & Son, Queensville, Ont. Sire, Baron Hopetown [10851] (13989). Dam, Jessie of Meikle Kilmory [7481] (13147).

5—Carluke Rose [23936], bay, stripe, nigh fore foot black, others white, foaled May 1st, 1910. Bred and exhibited by J. B. Calder, Carluke, Ont. Sire, Royal Donald (imp.) 8112 (13691). Dam, Argyll Maid (imp.) [12726].

Canadian-bred Clydesdale Stallions, foaled previous to Jan. 1st, 1909. Four Entries.

1—Kyoma [8029], brown, stripe, white legs, foaled June 2nd, 1906, bred by A. E. Ogilvie, Lachine Rapids, Que. Exhibited by David G. Boyd, Kars, Ont Sire, Rejected (imp.) [4800] (11969). Dam, Maggie Carrick (imp.) [14580].

2—Dandy Prince [9533], black, face and legs white, spot on belly, foaled June 27th, 1908. Bred and exhibited by R. C. Rogerson, Fergus, Ont. Sire, Prince Orla (imp.) [4493] (11471). Dam, Maggie 4th of Drum (imp.) [13172].

3—Sir Marquis of Ferndale [10368], foaled June 25th, 1908. Bred and exhibited by Fierheller Bros., Mount Elgin, Ont. Sire, Lord Powiss [7752]. Dam, Marie Lloyd [13351.]

Canadian-bred Clydesdale Stallions, foaled in 1909. Eleven Entries.

1—Prince Montague [12792], dark bay, stripe, hind feet white, foaled June 15th, 1909. Bred and exhibited by W. G. Ormiston, Enfield, Ont. Sire, Baron Montague (imp.) [3832]. Dam, Topsy Ingram, [4369].

2—Lord Laurie [11819], bay, face and hind legs white, mark on front of off fore foot, foaled April 14th, 1909. Bred and exhibited by W. H. Mancell, Fletcher, Ont. Sire, Whitemoss (imp.) [7636] (13827). Dam, Katie (imp.) [13358.]

3—Montrave Max [12804], bay, face, off fore and both hind legs white, foaled September 6th, 1909. Bred and exhibited by Jas. A. Milne, Fergus, Ont. Sire, Montrave Mangus (imp.) [8203] (12255). Dam, Minnie of Speers [3886.]

4—Gay Baron [10528], light bay, stripe, four feet white, foaled May 5th, 1909. Bred and exhibited by John Arbogast, Sebringville, Ont. Sire, Baronswood (imp.) [8067] (13355). Dam, Nellie Arbogast [16358].

5—Bonnie Charlie [10830], bay, stripe, hind feet white, foaled May 16th, 1909. Bred and exhibited by Robert Stewart, Glen Allan, Ont. Sire, Rozelle (imp.) [6734] (10638). Dam, Maple Grove Beauty, 15352.

6—Montrave Chief [10568], bay, stripe, nigh hind foot white, foaled June 10th, 1909. Bred and exhibited by Wm. A. Dix, Fergus, Ont. Sire, Montrave Mangus [8203] (12255). Dam, Jess Celt [8944.]

7—Brogie Lad [12814], bay, stripe, off hind foot white, foaled May 25th, 1909. Bred by Allan Baker, Alberton, Ont. Exhibited by David Smith, Carluke, Ont. Sire, Prince Cairnbrogie (imp.) [4785] (12697). Dam, Glen Boig Lass (imp.) [14327].

Canadian-bred Clydesdale Stallions, foaled in 1910. Sixteen Entries.

1—Prince Ivory [12442], bay, stripe, nigh fore and both hind legs white, foaled July 21st, 1910. Bred and exhibited by Smith & Richardson, Columbus, Ont. Sire, Black Ivory (imp.) [7761] (13367). Dam, Fashion Belle (imp.) (14232).

2—Major Flush [12350], bay, stripe, nigh fore foot and hind legs white, foaled June 4th, 1910. Bred and exhibited by Peter Christie, Manchester, Ont. Sire, Royal Flush (imp.) [4790] (11906). Dam, Lady Cairnton [5119.]

3—Day Dream [12801], foaled June 4th, 1910. Bred and exhibited by Wm. Elliott, Galt, Ont. Sire, Baron Acme (imp.) [5748]. Dam, Daisy Baroness (imp.) [12166].

4—Stanford [12810], bay, face and feet white, foaled May 9th, 1910. Bred by Wm. Henry, Clinton, Ont. Exhibited by Fred Henry, Clinton, Ont. Sire, Dunnydeer (imp.) [8130] (12557). Dam, Golden Rose (imp.) [13952].

5—Earl Dow [11354], bay, face and legs white, foaled May 28th, 1910. Bred and exhibited by J. T. Peacock, Woodbridge, Ont. Sire, Baron Dow (imp.) [9539] (14445). Dam, Jess of Castlemore [5850].

6—Captain Wallace [12391], bay, stripe, nigh fore and both hind legs white, foaled March 16th, 1910. Bred and exhibited by W. H. Mancell, Fletcher, Ont. Sire, Marchfield Baron (imp.) [8432] (13629). Dam, Lady Wallace [26100.]

7—Prince of Quality [12785], bay, face and hind legs white, foaled May 2nd, 1910. Bred and exhibited by Thos. McBurney, Embro, Ont. Sire, Prince Expectant [6309]. Dam, Jess of Greenhill [12881.]

Canadian-bred Clydesdale Stallions, foaled in 1911. One Entry.

1—Peerless Ascot [12787], dark brown, stripe, hind feet white, foaled April 2nd, 1911. Bred and exhibited by Wm. Woodley & Sons, Dundas, Ont. Sire, Prince Ascot (imp.) [8458] (14485). Dam, Peerless Madge (imp.) [12936.]

Canadian-bred Mares, foaled previous to Jan. 1st, 1909. Seven Entries.

1—Flora Hunter [14618], bay, foaled June 24th, 1907. Bred and exhibited by A. G. Gormley, Unionville, Ont. Sire, Fullarton (imp.) (2370). Dam, Beauty (imp.) [4784].

2—Matchless [16768], bay, ratch, four feet white, foaled June 14th, 1906. Bred and exhibited by Hugh Semple, Hereward, Ont. Sire, Montrave Royalty (imp.) [7690] (11831). Dam, Nellie Reckoner [5193].

3—Pearl Durbar [16765], bay, stripe, little spot of white on side of nigh hind foot, foaled May 10th, 1908. Bred and exhibited by Hugh Semple, Herewood, Ont. Sire, Durbar (imp.) [6114] (11695). Dam, Gay Fannie [5190].

4—Bonnie Bell [5566], foaled May 19th, 1905. Bred and exhibited by Fierheller & Sons, Mt. Elgin. Sire, Unionist [4335]. Dam, Bonnie Bell, 2522.

5—Queen Maude [21542], bay, stripe, off fore and hind legs white, foaled June 16th, 1908, bred by John R. Clark, Morriston, Ont. Exhibited by R. Tuck & Son, Eden Mills, Ont. Sire, King's Seal (imp.) [6733] (12623). Dam, Maude [21541].

6—Charmer Belle [25379], bay, stripe, hind legs white, foaled May 15th, 1908. Bred and exhibited by Alexander Farr, Floradale, Ont. Sire, The Charmer (imp.) [6109] (12390). Dam, Nell.

Canadian-bred Clydesdale Mares, foaled in 1909. Eleven Entries.

1—Hilda Priam [21407], brown, face and near hind leg white, foaled June 8th, 1909, bred by Wm. Jewell, Bowmanville, Ont Exhibited by Smith & Richardson, Columbus, Ont. Sire, Prince Priam [3616] (10854). Dam, Royal Winnafred [5143].

2—Burndennett Lassie [20481], bay, foaled July 2nd, 1909. Bred and exhibited by A. G. Gormley, Unionville, Ont. Sire, Fullerton (imp.) [2370]. Dam, Queen of Burndennett [6060].

3—Bess Gartley [21693], bay, face, near fore and hind legs white, foaled April 29th, 1909. Bred and exhibited by Richard A. Roe, Hawkestone, Ont. Sire, Baron Gartley (imp.) [4789] (11601). Dam, Queen Lavender [21692].

4—Black Bess [20498], black, stripe, nigh hind pastern white, foaled May 1st, 1909. Bred and exhibited by Geo. Clayton, Peepabun, Ont. Sire, Castle King (imp.) [5753] (12517). Dam, Scottish Rose [7970].

5—Silverne [20507], bay, gray hairs through coat, white face, four white legs, spot on belly, foaled August 1st, 1909. Bred and exhibited by R. C. Rogerson, Fergus, Ont. Sire, Prince Orla (imp.) [4493] (11471). Dam, Maggie 4th of Drum (imp.) [13172].

6—Acme's Dandy [19000], bay, stripe, off hind leg white to hock, foaled April 23rd, 1909. Bred by R. M. Holtby, Manchester, Ont. Exhibited by Wellington Somerville, Port Perry, Ont. Sire, Acme (imp.) [3572] (10485). Dam, Belina (imp.) [12943].

Canadian-bred Clydesdale Mares, foaled in 1910. Ten Entries.

1—Faraway Rose [23872], bay, face and legs white, foaled April 3rd, 1910. Bred and exhibited by Chas. E. Meadows, Maplewood, Ont. Sire, Faraway Blend [9006] (12973). Dam, Parthenia (imp.) [12744].

2—Viola Matchless [24064], brown, face and ankles white, foaled June 4th, 1910. Bred and exhibited by Hugh Semple, Hereward, Ont. Sire, Castle King (imp.) [2753] (12517). Dam, Matchless [16768].

3—Trim of Oro [23829], bay, face and legs white, foaled April 28th, 1910. Bred and exhibited by Richard A. Roe, Hawkestone, Ont. Sire, Baron Gartley, (imp.) [4789] (11601). Dam, Queen Lavender, [21692.]

4—Queen Montrave [24036], bay, stripe, hind feet white, foaled May 20th, 1910. Bred and exhibited by Wm. A. Dix, Fergus, Ont. Sire, Montrave Magnus (imp.) [8203] (12255). Dam, Jess Celt [8944.]

5—Queen of Fisherville [24199] bay, stripe, hind feet white, foaled April 17th, 1910. Bred and exhibited by W. J. Howard & Son, Concord, Ont. Sire, Gartly For Ever (imp.) [8412] (14131). Dam, Balmanno Kate [4778].

6—Miss Dow [23904], brown, face and hind legs white, foaled June 17th, 1910. Bred and exhibited by J. T. Peacock, Woodbridge, Ont. Sire, Baron Dow (imp.) [9539] (14445). Dam, Jess (Bay) foaled July 1st, 1901, bred by J. A. Sleightholme, Humber, Ont.

Canadian-bred Clydesdale Mares foaled in 1911. Three Entries.

1—Rosebud [27064], bay, one hind leg white and strip in face, spot on back of off front knee, foaled May 17th, 1911. Bred and exhibited by W. J. O'Neill, Arthur, Ont. Sire, Baron Buchanan [6101]. Dam, Rosalind [13299].

2—Lady Orla [26918], bay, face and legs white, foaled May 8th, 1911. Bred and exhibited by Fred J. Wilson, Riverbank, Ont. Sire, Prince Orla (imp.) [4493] (11471). Dam, Fanny Clark (imp.) [14049].

3—Kilnhill Beauty, brown, face, fore feet and hind legs white, foaled April 2nd, 1911, bred by W. D. Forester, Markham, Ont. Exhibited by T. H. Hassard, Markham, Ont. Sire, Kilnhill Victor, [9745]. Dam, Lady Chaten [7785].

Shire Stallions, foaled previous to January 1st, 1909. One Entry.

1—Proportion (imp.) [582] grey, foaled in 1907, bred by F. J. Allsopp, England. Exhibited by Porter Bros., Appleby. Sire, Nail Stone Ragged Jacket (21689). Dam, Tuttlebrook Fuschia (imp.) [337].

Shire Stallions, foaled in 1909. Two Entries.

1—Tuttlebrook King (imp.) [758] (Vol. 32 E.) bay, foaled in 1909, bred by F. Pickworth, Lincs, England. Exhibited by John Gardhouse & Sons, Highfield, Ont. Sire, Buckingham King Harold (17823). Dam, Lively.

2—Tuttlebrook Esquire (imp.) [760] (Vol. 32 E.) foaled in 1909. Bred by John Gathercole, Wisbech, England. Exhibited by John Gardhouse, Highfield, Ont. Sire, Deighton Bar (16633). Dam, Smart (55873).

Shire Stallions, foaled in 1910. Two Entries.

1—Dunsmore Proctor [872], bay, brown, strip, hind legs and near fore pastern white, foaled 1910, bred by E. C. Maurice, Rugby, England. Exhibited by T. H. Hassard, Markham. Sire, Prospector (25553). Dam, Dunsmore Polka (53721).

2—Sir Dewey [766] bay, foaled in 1910. Bred and exhibited by Porter Bros., Appleby. Sire, Baron Kitchener [356]. Dam, Rose [145].

Shire Mares, foaled previous to January 1st, 1909. One Entry.

1—Holdenby Bloom (imp.) [451] (54160) bay, white face, four white legs, foaled 1905, bred by Geo. Trevitt, Helpringham, England. Exhibited by Webster Bros., Glencoe, Ont. Sire, Whaplode Squire (17701). Dam, Jack.

Shire Mares, foaled in 1909. Two Entries.

1—Tuttlebrook Sunflower (685), bay, foaled in 1909, bred by Chas. Dentney, England. Exhibited by Porter Bros., Appleby. Sire, Mangusor Harold (20706. Dam, Flower.

2—Tuttlebrook Ladylike [695], bay, foaled in 1909, bred by E. Collen, England. Exhibited by Porter Bros., Appleby. Sire, The Black King (24686). Dam, Pink.

Shire Mares, foaled on or after Jan. 1st, 1910. Four Entries.

1—Rea Princess (imp.) [722] (Vol. 33 E.), bay star, hind legs white, foaled in 1910. Bred by R. J. E. Smith, Burnaston, Derby, England. Imported and exhibited by Thos. Mercer, Markdale. Sire, Rickford Crown Prince (25578). Dam, Bonny.

2—Rea Daphne (imp.) [721] (Vol. 33 E.) bay, blaze, hind legs white, foaled in 1910. Bred by T. Sutton, Droitwich, England. Imported and exhibited by Thos. Mercer, Markdale. Sire, Barrow King (23982). Dam, Ford Hall Princess (56986).

3—Tuttlebrook Flirt (imp.) [684], black, foaled in 1910, bred by Thos. Wing Estate, England. Exhibited by Porter Bros., Appleby. Sire, Finstall Land Master (24247). Dam, Bonny (50384).

4—Duchess [728] foaled May 17th. Bred and exhibited by J. T. Reid & Sons, Derry West, Ont. Sire, Holdenby Turpin (23362). Dam, Meagan (51613).

Hackney Stallions, foaled previous to January 1st, 1909. Five Entries.

1—Coveney Marmion (imp.) —329— (9173), dark, chestnut, white strip, left hind foot white, foaled 1903, bred by John Bays, Coventry, Maple Cambs, England. Exhibited by W. C. Crummer, Wallaceburg, Ont. Sire, Wetchen Marmion 8037. Dam, Lady Mayoress (2943), by Comet (1380).

2—Crayke Mikado (imp.) —334— (9176), bay, star, near fore fetlock white, foaled in 1904, bred by Stephen Cliff, Western Flatts, Wortley, Leeds, England. Exhibited by Miss K. L. Wilks, Galt, Ont.; sire, Garton Duke of Connaught (3009); dam (13533), Halsham Topsy.

3—Terrington Narcissus (imp.) —511— (10905), bay, near fore coronet and hind pasterns white, foaled 1908. Bred by Sir Gilbert Greenall, Walton Hall, Warrington, England. Imported and exhibited by The Graham Renfrew Co., Ltd., Bedford Park, Ont.; sire, Nafferonite (3824); dam, Terrington Majestic (13794).

4—Territorial Flashlight —481—, dark chestnut, small star, foaled May 19th, 1908. Bred and exhibited by J. R. Thompson, Guelph, Ont.; sire, Terrington Flashlight (imp.) —448— (9519); dam, —81— Sun Dance.

5—Lochlomond (imp.) —537— (11274), brown, two hind feet white, foaled in 1907. Bred by Jas. Weir, Sandilands, Lanark, Scotland. Exhibited by Albert Hewson, Grahamsville, Ont.; sire, Ireland's Crown Prince (8909); dam, Pattie Hilden (13012).

Hackney Stallions foaled previous to January 1st, 1909. Under 15.2 hands. Two entries

1—Blanch Surprise (imp.) —368— (8745), dark chestnut, white face, four white legs, foaled in 1903. Bred by John Beal, North Dalton, Driffield, England. Exhibited by H. G. Boag, Barrie, Ont.; sire, Rosador (4964); dam, Blanch Primrose (15634).

2—Terrington Semaphore (imp.) —512— (10906), bay, near hind pastern white, small white spot on front of near fore coronet, foaled 1908. Bred by Sir Gilbert Greenall, Walton Hall, Warrington, England. Exhibited by The Graham Renfrew Co., Ltd., Bedford Park, Ont.; sire, Terrington Temple Barr (9464); dam, Terrington Sunlight (14785).

Hackney Stallion, foaled on or after January 1st, 1909. (Age Considered.) Four entries.

1—Progress —614—, chestnut, hind legs white half way to hocks, foaled June 30th, 1909. Bred and exhibited by J. R. Thompson, Guelph, Ont.; sire, Prong Buck —366—; dam, Playful —96—.

2—Warwick —615—, brown, large star and snip, near hind leg white, foaled June 6th, 1909. Bred and exhibited by J. R. Thompson, Guelph, Ont.; sire, Warwick Model (imp.) —304— (8694); dam, Ruth —126—.

3—Derwent Wildfire —578—, chestnut, star, foaled in 1910. Exhibited by G. H. Pickering, Brampton, Ont.; sire, Derwent Performer (imp.) —429— (8823); dam, Village Belle —467—.

Hackney Mare, foaled previous to January 1st, 1909. Eight entries.

1—Lochryan Princess —619— 18378, chestnut, star, white hind legs, foaled in 1904. Bred by the late David Jones, Beech House, Wroxham. Exhibited by E. B. Clancy, Guelph, Ont.; sire, His Majesty (2513); dam, Whitegate Pansy by Cassius (2397).

2—Coldspring Eveline (imp.) —750— (16536), brown, fetlocks white, foaled in 1902. Bred by Wm. Sugden, Cullingworth, England. Exhibited by Miss K. L. Wilks, Galt, Ont.; sire, Garton, Duke of Connaught (3009); dam, Eva (Vol. 1) (3744).

3—Victoria Regina —663— 14834, bay, star, white on fore fetlocks, foaled in 1900. Bred by Wm. Martin, Scorby Grange, Gate Wenhenslay, York. Exhibited by E. B. Clancy, Guelph, Ont.; sire, Pilot, 2nd (3864); dam, Victoria —358— (Vol. 2) by Denmark —177—

4—Rebus —524—, bay, very small star, near hind fetlock white, foaled May 9th, 1908. Bred and exhibited by J. R. Thompson, Guelph, Ont.; sire, Commodore 3rd (imp.) —150— (6695); dam, —378—, Rebellious Susan.

5—Princess Reta —729—, gray, few white hairs on right front foot, foaled Oct. 21st, 1908. Bred and exhibited by Norman Hill, Marden, Ont.; sire, Warwick Model (imp.) —304— (8694); dam, Dappled Beauty.

Hackney Mare, foaled on or after January 1st, 1909. (Age Considered.) Two entries.

1—Reta —752—, dark chestnut, star, hind legs white, foaled May 25th, 1910. Bred and exhibited by J. R. Thompson, Guelph, Ont.; sire, Warwick Model (imp.) —304— (8694); dam, Ruth —126—.

2—Bonnie Model —785—, chestnut, stripe off fore and hind legs white, spot on belly, foaled May 10th, 1909. Bred and exhibited by R. C. Rogerson, Fergus, Ont.; sire, Warwick Model (imp.) —304— (8694); dam, Dante Bess —784—.

Standard-bred Stallion, foaled previous to January 1st, 1909. Five entries.

1—Mograzia —155— 42010, bay, foaled 1903. Bred by O. J. Phelps. Exhibited by Miss K. L. Wilks, Galt, Ont.; sire, Moko, 24457; dam, Congrazia by Artevolo, 7648.

2—Prince Ideal —38—, 38306, chestnut, foaled 1901. Bred by C. J. Harry, Hamlin, East Aurora, N.Y. Exhibited by T. H. Hassard, Markham, Ont.; sire, The Beau Ideal, 30459; dam, Lady Future Princess (Vol. 16, p. 604, A.T.R.).

3—General Worth, 37370, foaled Dec. 3rd, 1902. Exhibited by Ira A. Mabee, Aylmer, Ont.; sire, Gambetta Wilkes, 4659; dam, Clementine, 4766.

4—Sam Bernard —270—, 45447, foaled in 1906. Bred by E. T. Featherston, Lexington, Ky. Exhibited by Miss K. L. Wilks, Galt, Ont.; sire, Bernadotte; dam, Grecca by Artillery.

5—Michael Grattan, 53497, chestnut, sandy mane and tail, foaled Aug. 31st, 1907. Bred and exhibited by M. P. Barry, Rockwood, Ont.; sire, Steel Arch, 35639; dam, Marjory Bals by Lorraine.

Standard-bred Stallion, foaled on or after January 1st, 1909. Four entries.

1—Oro Sphinx, 55852, bay, foaled 1909. Bred by J. N. Snipes, Blair, Ont. Exhibited by Michael Kreh, New Hamburg; sire, Oro Wilkes, 34347; dam, Erosette Sphinx by Dashwood, 12486.

2—Prince Bison, 52891, black, foaled 1909. Bred by Fred A. Armstrong. Exhibited by Chas. H. Aitken, Fergus, Ont.; sire, The Bison, 36013; dam, Lorra Ross.

Standard-bred Mares, foaled previous to January 1st, 1909. Five entries.

1—Okom Belle —259—, 70484, foaled 1906. Bred by Cruickston Farm. Exhibited by Miss K. L. Wilks, Galt, Ont.; sire, Moko (24457); dam, Congrazia by Artevelo, 7648.

2—Miss M. B., 80475, dark, bay, black points, foaled May, 1907. Bred and exhibited by Peter Beaver, Morriston, Ont.; sire, Oro Wilkes, 30347; dam, Ida Hancock (Vol. 8).

3—Pansy Wilks, 94185 (Vol. 19), brown, foaled 1907. Exhibited by Thos. Griffin, Guelph, Ont.; sire, Oro Wilks, 30347; dam, Myra.

Standard-bred Mare, foaled on or after January 1st, 1909. Two entries.

1—Paronella Todd, 101593, grey, foaled 1909. Bred and exhibited by Miss K. L. Wilks, Galt, Ont.; sire, Kentucky Todd, 42571; dam, Vanity W. by Haldane, 4548.

2—Lulu Mograzia, 79792, foaled 1908. Exhibited by Miss K. L. Wilks, Galt, Ont; sire, Mograzia, 42010; dam, Lulu McGregor.

Thorough-bred Stallion, foaled previous to January 1st, 1909. Four entries.

1—Nasbaden —83—, 57500, chestnut, star and snip, near hind ankle white, foaled May 12th, 1907. Bred by Milton Young, Lexington, Ky. Exhibited by Thayer Bros., Aylmer, Ont.; sire, Nasturtium (Vol. 9, p. 1,151 A.); dam, Miss Baden (Vol. 9, p. 655 A.).

2—Halfling (imp.) (172), 196, brown, foaled 1892. Exhibited by Paterson Bros., East Toronto, Ont.; sire, McHeath by Macorooni by Stockwell; dam, Moiety of Charibert.

3—Selwik —436— (Vol. 10, p. 205 A.), bay, hind ankles white, black spots around coronet, foaled March 25th, 1906. Bred by R. H. McCartner, Potter, N.Y. Exhibited by Jas. Bovaird, Brampton, Ont.; sire, Knight of Thistle (imp.) (Vol. 8, p. 942 A.); dam, Clairette (Vol. 10, p. 205 A.).

4—Yoritomo, 29189, seal brown, foaled March 23rd, 1901. Bred by C. T. Boots, California. Exhibited by F. D. Parsons, Guelph, Ont.; sire, Satsuma; dam, Lucie DeLammermoor.

Thorough-bred Stallion, foaled on or after January 1st, 1909. Two entries.

1—Harry Giddings, bay, both hind coronets white, foaled May 24th, 1910. Bred and exhibited by Jas. Bovaird, Brampton, Ont.; sire, St. Basset; dam, Mrs. Siddons.

2—Derry Walls, 68145, chestnut, foaled March 25th, 1910. Exhibited by J. T. Reid & Sons, Derry West, Ont.; sire, Cormorant; dam, The Bronze Demon, —580—.

Thorough-bred Mare, foaled on or after January 1st, 1909. Two entries.

1—May Stanfield —514—, chestnut, star, and long stripe extending to nostril, nigh hind foot white half way to knee, foaled May 9th, 1910. Bred by Geo. M. Hendrie, Hamilton, Ont. Exhibited by Jas. Bovaird, Brampton, Ont.; sire, Martimas (Vol. 7, p. 111 A.); dam, Black Bella (Vol. 9, p. 1,096 A.).

2—Fanny Boyle —510—, chestnut, star and very small, narrow stripe near to nose, foaled April 20th, 1910. Bred by Geo. M. Hendrie, Hamilton, Ont. Exhibited by Jas. Bovaird, Brampton, Ont.; sire, Martimas (Vol. 7, p. 111 A.); dam, Mary Cowan (Vol. 9, p. 613 A.).

Hackney Pony Stallion, any age, 14.1 hands and under. Two entries.

1—Royal Review —279— (10033), dark bay, star, nigh hind hoofhead and off hind ankle white, foaled 1904. Exhibited by T. H. Hassard, Markham; sire, Fireboy (7440); dam, Carita (14978).

2—Sir Horace Goldfinder (imp.) (4934), bay, off hind heel white, foaled 1903. Bred by Sir Gilbert Greenall, Walton Hall, Warrington, England. Exhibited by John Cartmel, Brantford, Ont.; sire, Golden Rule (6380); dam, Tissington Ogee (14019).

Hackney Pony Mares, any age, 14.1 hands and under. Two entries.

1—Royal Fair —776—, chestnut, star and snip, off fore pastern and hind fetlocks white, foaled 1900. Exhibited by T. H. Hassard, Markham, Ont.; sire, Royal Dangelt (5785); dam, Fair Confidence (3749).

2—Princess Reta —729—, grey, few white hairs on right front foot, foaled Oct. 21st, 1908. Bred and exhibited by Norman Hill Marden, Ont.; sire, Warwick Model (imp.) —304— (8694); dam, Dappled Beauty.

Pony Stallion, any other breed, any age. Five entries.

Daylight 2nd, foaled 1905. Exhibited by J. Lloyd Jones, Burford.
2—Electricity (Welsh), foaled 1908. Exhibited by T. L. Mercer, Markdale, Ont.
3—Harrigan, foaled 1909. Exhibited by A. Winter, Hespeler, Ont.
4—Laddie, foaled April, 1910. Exhibited by A. A. Sanders, Hamilton.

Pony Mares, Any Other Breed, Any Age. Six Entries.

1—Princess Bonnie. Exhibited by Edna Clancy, Guelph, Ont.
2—Fly, foaled 1906. Exhibited by A. Winter, Hespeler, Ont.
3—Beauty, foaled 1909. Exhibited by A. Winter, Hespeler, Ont.
4—Dolly, foaled 1906. Exhibited by J. Lloyd Jones, Burford.
5—Polly, foaled 1908. Exhibited by J. Lloyd Jones, Burford.

Heavy Draught Geldings or Mares, Shown in Single Harness. Thirteen Entries.

1—Hector, light bay, foaled 1907. Exhibited by T. H. Hassard, Markham, Ont. Sire, Dunedan [10343].

2—Donald, bay, foaled 1907. Exhibited by T. H. Hassard, Markham, Ont. Auchenflower [12007].

3—Bess of Langbarns, brown, foaled May 15th, 1908. Exhibited by Smith & Richardson, Columbus, Ont. Sire, Sir Marquis (imp.) 7790 (13205).

4—Royal Princess, brown, foaled March 15th, 1908. Exhibited by Smith & Richardson, Columbus, Ont. Sire, Royal Choice (imp.) 7846 (13165).

5—Major, bay, foaled June 1908. Exhibited by Wesley Kent, Embro, Ont. Sire, Balcraig [12808].

6—Roy, gelding, foaled 1907. Exhibited by D. A. Murray, Bennington, Ont. Sire, Royal Everard [11165].

7—Joe, gelding, foaled 1907. Exhibited by D. A. Murray, Bennington, Ont. Sire, Blyth Ben [12054].

Heavy Draught Geldings or Mares, foaled previous to January 1st, 1909, shown on a line, bred in Canada and the property of person actually engaged in farming or agricultural pursuits only, and owned by Exhibitor previous to November 1, 1911. Fourteen Entries.

1—Major. (See previous Section). Exhibited by Wesley Kent, Embro, Ont.
2—Roy. (See previous Section). Exhibited by D. A. Murray, Bennington, Ont.
3—Joe. (See previous Section). Exhibited by D. A. Murray, Bennington, Ont.
4—Scott. (See previous Section). Exhibited by Wesley Kent, Embro, Ont.
5—Maud. (See previous Section). Exhibited by Wm. Jacob, Mitchell, Ont.
6—Maud. (See previous Section). Exhibited by John Oliver, Wyoming, Ont.
7—Walton. (See previous Section.) Exhibited by Wm. Jacob, Mitchell, Ont.

Heavy Draught Geldings or Mares, foaled on or after January 1, 1909, shown on a line. Four Entries.

1—Peter, foaled May, 1909. Exhibited by Smith & Richardson, Columbus, Ont. Sire, Royal Freeland [6098] (13698).

2—Fred, foaled June, 1909. Exhibited by Smith & Richardson, Columbus, Ont. Sire, Baron Montague [3832].

3—Tom, gelding, foaled May 20th, 1909. Exhibited by J. W. Duncan, Orkney, Ont. Sire, All Gold 3479.

4—Rosebud. Exhibited by Alexander Farr, Floradale, Ont. Sire Rozelle (imp.) [6734] (10638).

Heavy Draught Team in Harness, Geldings or Mares. Eight Entries.

1—Hector. (See previous Section). Donald. (See previous Section). Exhibited by T. H. Hassard, Markham, Ont.

2—Bess of Langbarns (See previous Section). Royal Princess (See previous section). Exhibited by Smith & Richardson, Columbus, Ont.

3—Roy. (See previous Section). Joe. (See previous Section). Exhibited by D. A. Murray, Bennington, Ont.

4—Major. (See previous Section). Scott. (See previous Section). Exhibited by Wesley Kent, Embro, Ont.

5—Maud. (See previous Section). Walton. (See previous Section). Exhibited by Wm. Jacob, Mitchell, Ont.

6—Bill. (See previous Section). Tom. (See previous Section). Exhibited by W. H. Merritt, St. Catharines, Ont.

7—Maud. (See previous Section). Punch. (See previous Section). Exhibited by John Oliver, Wyoming, Ont.

CHAMPIONSHIPS.

Clydesdale Stallion.

1st—Bydand (imp.) [12482] (15165). Exhibited by the Graham Renfrew Co., Bedford Park, Ont.

Clydesdale Mare.

1st—Iron Duchess (imp.) [26224] (28202). Exhibited by Smith & Richardson, Columbus, Ont.

Canadian-bred Clydesdale Stallion.

1st—Prince Ivory [12442]. Exhibited by Smith & Richardson, Columbus, Ont.

Canadian-bred Clydesdale Mare.

1st—Flora Hunter (14618]. Exhibited by A. G. Gormley, Unionville, Ont.

Shire Stallion.

1st—Tuttlebrook King (imp.) [758] (Vol. 32 E.) Exhibited by John Gardhouse & Sons, Highfield, Ont.

Shire Mare.

1—Tuttlebrook Sunflower [685]. Exhibited by Porter Bros., Appleby, Ont.

Hackney Stallion.

1st—Blanch Surprise (imp.) -368- (8745). Exhibited by H. G. Boag, Barrie, Ont.

Hackney Mare.

1st—Lochryan Princess -619- 18378. Exhibited by E. B. Clancy, Guelph, Ont.

Standard-bred Stallion.

1st—Mograzia 42010. Exhibited by Miss K. L. Wilks, Galt, Ont.

Standard-bred Mare.

1st—Paronella Todd 101593. Exhibited by Miss K. L. Wilks, Galt, Ont.

Thorough-bred Stallion.

1st—Nasbaden -83- 57500. Exhibited by Thayer Bros., Aylmer, Ont.

Pony Stallion.

1st—Royal Review -279- (10033). Exhibited by T. H. Hassard, Markham, Ont.

Pony Mare.

1st—Royal Fair -776-. Exhibited by T. H. Hassard, Markham, Ont.

GRAND CHAMPIONSHIPS.

Clydesdale Stallions.

1st—Bydand (imp.) [12482] (15165). Exhibited by The Graham Renfrew Co., Ltd., Bedford Park, Ont.

Clydesdale Mare.

1st—Iron Duchess (imp.) 26224 (28202). Exhibited by Smith & Richardson, Columbus, Ont.

SPECIALS.

Best Hackney Stallion, shown on a line.

1st—Blanche Surprise (imp.) —368—(8745). Exhibited by H. G. Boag, Barrie.

Best Hackney Mare, shown on a line.

1st—Lochryan Princess —619— 18378. Exhibited by E. B. Clancy, Guelph.

Best Hackney Pony, shown on a line.

1st—Royal Review —279— (10033). Exhibited by T. H. Hassard, Markham.

Best Heavy Draught Team, shown by an amateur exhibitor, resident of the County of Wellington.

1st—John D. Campbell, Harriston. 2nd.—Alex. Farr, Floradale.

Best Horse shown by an amateur exhibitor, resident of the County of Halton.

1st—Weston Bros., Eden Mills.

Best Mare shown by an amateur exhibitor, resident of the County of Lambton.

1st—John Oliver, Wyoming.

Best Gelding shown by an amateur exhibitor, resident of the County of Lambton.

1st—John Oliver, Wyoming.

BEEF CATTLE.

Shorthorn Steer, 2 years and under 3. Four entries.

1st—John Brown & Sons, Galt. Alex., Nov. 1908. Sire, Butterfly's Archer, 58525. Dam, Daisy of Kent, 3rd Vol. 22.

2nd—John Brown & Sons, Galt. Rancher, Sept. 1908. Sire, Early Morning, 58701; dam, Jenny Linn, 39718.

Shorthorn Steer, 1 year and under 2. Six Entries.

1st—Daniel Talbot & Son, Everton. Time o' Day, Jan. 10, 1910. Sire, St. Augustine, 69698; dam, Lavender Thyme, 7th, 638207.

2nd—J. Watt & Son, Salem. Irene's Best Boy. Jan. 29, 1910. Sire, imported Pride of Scotland, 45213; dam, Lady Irene, 76630.

3rd—Wm. A. Douglas, Tuscarora. Red Royal, May 12th, 1910. Sire, Royal Star, 72502; dam, Lady Royal, 88634.

4th—John Brown & Sons, Galt. Likely, Nov. 1909. Sire, Bell Duke, 69188; dam, Camden Kate, 26171.

5th—Wm. A. Douglas, Tuscarora. Morning Joy, March 24th, 1910. Sire, Joy of Morning, 32070; dam, Lady Bird, 41248.

Shorthorn Steer, under 1 year. Six Entries.

1st—James Leask, Greenbank. White Lad, Nov. 12, 1910. Sire, Gloster's Choice, 45238; dam, Roan Lady, 56622.

2nd—Alex Young, Glanford. Village Prince, Sept. 10, 1910. Sire, Royal Prince, 31241; dam; Village Maid, 74118.

3rd—R. A. Fursey, Guelph. Autumn Chief, Oct. 1, 1910. Sire, Royal Chief, 76598; dam, Lady Belle 3rd, 86997.

4th—E. Brien & Sons, Ridgetown. White King, Jan. 11, 1911. Sire, Gloster's Fashion, 64879; dam, Margaret, 68674.

5th—Wm. Murdoch, Palmerston. Palmerston, Nov. 2, 1910. Sire, Palmerston 5th, 76445; dam, Venus 2nd, 88520.

Shorthorn Heifer, 2 years and under 3. Three Entries.

1st—Geo. Amos & Son, Moffat. Lancaster May, 94703, May 5th, 1909. Sire, Lancaster Flora, 64461; dam, Dew Drop of Springhill, 56925.

2nd—Geo. Amos & Son, Moffat. Cecilia Lass, 92341, Feb. 19, 1909. Sire, Ben Lomond, (imp.) 45760; dam, Cecilia Ray, 67705.

3rd—John Brown & Sons, Galt. Lily, Dec. 28, 1908. Sire, Village Victor, 63819; dam, Snowflake, 69294.

Shorthorn Heifer, 1 year and under 2. Twelve Entries.

1st—Peter Stewart, Everton. Queen Mildred, 92788, Jan. 15th, 1910. Sire, St. Augustine, 69698; dam, Mildred 13th, 53465.

2nd—W. R. Elliott & Sons, Guelph. Lovelace E, 92296, April 2nd, 1910. Sire, Village Bridegroom, 72868; dam, Miss Lovelace, 85005.

3rd—W. R. Elliott & Sons, Guelph. Ramsden Queen, 92295, Jan. 2, 1910. Sire, Village Bridegroom, 72868; dam Proud Queen 2nd, 84065.

4th—John Currie, Barrie Hill. Roan Beauty 3rd, 92306, Jan. 21, 1910. Sire, Waverley, 72804; dam, Aurelia 3rd, 50907.

5th—Wm. A. Wallace, Kars, Ont. Pansy 6th, 91406, Oct. 15th, 1909. Sire, Brilliant Star, (91030), 60833; dam, Pansy 5th, 81430.

Shorthorn Heifer, under 1 year. Eight Entries.

1st—W. R. Elliott & Sons, Guelph. Mischief E 3rd, 96353, Sept. 4th, 1910. Sire, Village Bridegroom, 72868; dam, Mischief C, 69269.

2nd—W. R. Elliott & Sons, Guelph. Bridal Ruby, 96351, Oct. 10, 1910. Sire, Village Bridegroom, 72868; dam, Ruby of Pine Grove 3rd, 50006.

3rd—Geo. Amos & Sons, Moffat. Pleasant Valley Crocus, 96318, Sept. 22, 1910. Sire, Lancaster Floral, 64461; dam, Mabel of Knowhead, 48448.

4th—R. F. Duncan, Carluke. Royal Princess, 96226, Oct. 12th, 1910. Sire, Best of All, 77315; dam, Louisa, 44846.

5th—Kyle Bros., Ayr. Spring Valley Buckingham, March 1st, 1911. Sire, Jessie's Chancellor, 68605; dam, Ethel Buckingham, 76689.

Hereford Steer, 2 years and under 3. Two Entries.

1st—Henry Reed, Mimosa. Tom, Feb. 10, 1909. Sire, Erin Chief, 6797; dam, Mimosa Gentle 3rd, 1775.

2nd—Henry Reed, Mimosa. Dick, April 16th, 1909. Sire, Erin Chief, 6797; dam, Mimosa Rose, 2520.

Hereford Steer, 1 year and under 2. Three Entries.

1st—H. D. Smith, Hamilton. Erin's Pride, Oct. 26, 1909. Sire, Erin's Chief, 6797. dam, Erin's Rose, 2518.

2nd—Henry Reed, Mimosa. Ned, April 8, 1910. Sire, Erin Chief, 6797; dam, Lill's Lass, 7602.

3rd—Henry Reed, Mimosa. Oliver, Jan. 10, 1910. Sire, Erin Chief, 6797; dam, Olive, 4846.

Hereford Steer, under 1 year. One Entry.

1st—Henry Reed, Mimosa. Leo, Jan. 15, 1911. Sire, Erin Chief, 6797; dam, Olive, 4846.

Hereford Heifer, 2 years and under 3. Three Entries.

1st—L. O. Clifford, Oshawa. Rosetts, 9797, Sept. 3, 1908. Sire, Prime Lad, 6425; dam, Rosette, 9796.

2nd—H. D. Smith, Hamilton. Amy 7th of Ingleside, 9597, Sept. 7, 1909. Sire, Bourton Ingleside, 2410; dam, Amy 3rd of Ingleside, 5886.

3rd—Adam A. Armstrong, Fergus. Cartage 2nd, July 26, 1909. Sire, Spartacus, 1716; dam, Cartage, 2712.

Hereford Heifer, 1 year and under 2. Four Entries.

1st—L. O. Clifford, Oshawa. Miss Brae 26th, 9975, Oct. 2, 1909. Sire, Bonnie Brae 3rd, 7479; dam, Twilight, 9970.

2nd—L. O. Clifford, Oshawa. Miss Brae 33rd, 9973, Jan. 4, 1910. Sire, Bonnie Brae 3rd, 7497; dam, Lady Real, 9966.

3rd—H. D. Smith, Hamilton. Rubella 17th of Ingleside (10563), Feb. 20, 1910. Sire, Forest Pride, 2403; dam, Rubella 7th of Ingleside, 7561.

4th—The F. W. Stone Stock Co., Guelph. Peach Blossom, 383321, Dec. 3, 1909. Sire, Dobbin, (220223), 9417; dam, Peach Blossom, (153845), 8498.

Hereford Heifer, under 1 year. Three Entries.

1st—L. O. Clifford, Oshawa. Miss Brae 35th, 10565, Oct. 3, 1910. Sire, Bonnie Brae 3rd, 7497: dam, Priscilla 2nd, 7499.

2nd—L. O. Clifford, Oshawa. Miss Beau, 10569, Feb. 5, 1911. Sire, Bourton Ingleside, 2410; dam, Beau's Columbia, 9550.

3rd—H. D. Smith, Hamilton. Victoria Ingleside 2nd, 10869, Oct. 15, 1910. Sire, Wandering Willie, 7232; dam, Sunny Hillside Beauty, 4721.

Sweepstake Hereford Steer or Heifer.

1st—L. O. Clifford, Oshawa. Miss Brae 26th, 9975.

Aberdeen-Angus Steer or Heifer, 1 year and under 2. Three Entries.

1st—James Bowman, Guelph. Elm Park Beauty 5th, 4171, Feb. 23rd, 1910. Sire, Elm Park Ringleader 3rd, 1654; dam, Elm Park Beauty 3rd, 1627.

2nd—James Bowman, Guelph. Elm Park Kidnapper, March 10, 1910. Sire, Lord Val 2nd, 868; dam, Elm Park Keepsake, 1647.

3rd—James Bowman, Guelph. Elm Park Matilda 3rd, 4180, Oct. 7, 1909. Sire, Elm Park Ringleader, 1654; dam, Century Place Matilda 3rd, 1660.

Aberdeen-Angus Steer under 1 year. Two Entries.

1st—John Lowe, Elora. Black Monarch, Sept. 20, 1910. Sire, Hundred, 2853; dam, Homestead Bloom, 3032.

Aberdeen-Angus Heifer, under 1 year. One Entry.

1st—James Bowman, Guelph. Elm Park Witch 2nd, 5100, Oct. 12, 1910. Sire, Elm Park Ringleader 3rd, 1654; dam, Witch of Benton, (imp.) 149.

Galloway Steer or Heifer, 1 year and under 2. Two Entries.

1st—Adam A. Armstrong, Fergus. Forest Lily, 1874, Sept. 9, 1909. Sire, Buchan, 1644; dam, Cathie, (1321), 12799.

Grade or Cross Steer, 2 years and under 3. Four Entries.

1st—Jos. Stone, Saintfield. Ike, March 30, 1909. Sire, Scottish Prince, 60868; dam, Roney.

2nd—Daniel Wright, Ponsonby. Major, Nov. 6, 1908. Sire, Dick Cook, 84621.

3rd—James M. Cornie, Fergus. Sam T., Jan., 1909. Sire, Bonnacord Model, 75101.

4th—John Brown & Sons, Galt. Bert, Sept. 1908. Sire, Village Victor, 63819.

Grade or Cross Steer, 1 year and under 2. Eleven Entries.

1st—Jos. Stone, Saintfield. Joe Dandy, May 1, 1910. Sire, Ben. Scott, 72783; dam, Queenie.

2nd—James Leask, Greenbank. Roan Lad, Jan. 3, 1910. Sire, Meadow King, 81827.

3rd—John Brown & Sons, Galt. Joe, Oct. 15, 1909. Sire, St. Augustine, 69698.

4th—John Lowe, Elora. Black Knight, Nov. 20, 1909. Sire, Elm Park Ringleader, 1817.

5th—F. W. Oke, Alvinston. Lad, Feb. 15, 1910. Sire, Oakley, 77917.

Grade or Cross Steer, under 1 year. Nine Entries.

1t—W. R. Durnin, Lucknow. Billy, Sept. 29, 1910. Sire, King Broadhook, 73556.

2nd—James A. Lindsay, Fergus. Baron, Nov. 15, 1910. Sire, Scottish Baron 2nd, 73884.

3rd—Adam A. Armstrong, Fergus. Prince, Nov. 3, 1910. Sire, Bud's Emblem, 63860.

4th—Pritchard Bros., Fergus. Billie, Sept. 4, 1910. Sire, Jim Watt, 65552.

5th—Alex. R. Wood, Fergus. Bill, Oct. 4, 1910. Sire, Prince Favorite, 76816.

Grade or Cross Heifer, 2 years and under 3. Seven Entries.

1st—Kyle Bros., Ayr. Clipper's Daisy, March 20, 1909. Sire, Clipper Chief, 64220.

2nd—John Keith, Salem. Tiny Rose, April 5, 1909.

3rd—John Brown & Sons, Galt. Grace, Dec., 1908. Sire, Village Victor, 63819.

4th—Cornelius Darby, Gourock. Ethel, March 4, 1909. Sire, Violet's Lancaster, 76103.

Grade or Cross Heifer, 1 year and under 2. Seven Entries.

1st—Henry Nickle, Everton. Trixie, Jan. 10, 1910. Sire, Cochrane of Tweedhill, 1905.

2nd—Kyle Bros., Ayr. The Belle. Sire, Clipper Chief, 64220.

3rd—James Leask, Greenbank. Tib, Sept. 28, 1909. Sire, Gloster's Choice, 45238.

4th—Henry Foster, Speedside. Fanny, Sept. 1909.

5th—J. W. Burt & Sons, Conningsby. Laura, Sept. 20, 1909. Sire, Grand Chief, 70560.

Grade or Cross Heifer, under 1 year. Ten Entries.

1st—Geo. Amos & Sons, Moffat. Dimples, Nov. 29, 1910.

2nd—H. E. Alton, Jr., Everton. Lady, Dec. 4, 1910. Sire, Waverley, 72814.

3rd—James Simpson, Moffat. Trixy.

4th—John Dickieson, Rockwood. Lady, Nov. 1, 1910. Sire, Eden Boy, 74062.

5th—H. E. Alton, Jr., Everton. Daisy, Dec. 25, 1910. Sire, Waverley, 72814.

Pure Bred or Grade or Cross Steer, 2 years and under 3. Open to Amateurs. Two Entries.

1st—Daniel Wright, Ponsonby. Major, Nov. 6, 1908. Sire, Dick Cook, 84621.

2nd—James M. Cormie, Fergus. Sam T., Jan. 1909. Sire, Bonnaccord Model, 75101.

Pure Bred or Grade or Cross Steer, 1 year and under 2. Open to Amateurs. Eight Entries.

1st—F. W. Oke, Alvinston. Lad, Feb. 15, 1910. Sire Oakley, 77917.

2nd—Wm. Murdoch, Elora. Red King, March 24, 1910. Sire, Middlebrook King, 3419.

3rd—Robt. Cochrane, Ayr. White Leader, April 1, 1910. Sire, Leader, 78305.

4th—Cornelius Darby, Gourock. Bob, March 20, 1910. Sire, Buck's Emblem, 63560.

5th—Robt. Cochrane, Ayr. Roan Sam, March 31, 1910. Sire, Leader, 78305.

Pure Bred or Grade or Cross Steer, under 1 year. Open to Amateurs. Ten Entries.

1st—Alex. Young, Glanford. Village Prince, Sept. 1910. Sire, Royal Prince, 31241; dam, Village Maid, 74118.

2nd—James A. Lindsay, Fergus. Baron, Nov. 15, 1910. Sire, Scottish Baron 2nd, 73884.

3rd—Robt. McAllister, St. Augustine. Bonny Lad, Jan. 20, 1911. Sire, Free Trade, 72505.

4th—R. A. Fursey, Guelph. Autumn Chief, Oct. 1, 1910. Sire, Royal Chief, 76598; dam, Lady Belle 3rd, 86997.

5th—A. W. Hardisty, Westfield. Jimmy, Jan. 12, 1911. Sire, Royal Bob, 75028; dam, Rose.

Pure Bred or Grade or Cross Heifer, 2 years and under 3. Open to Amateurs. Two Entries.

1st—Cornelius Darby, Gourock. Ethel, March 4, 1909. Sire, Violet's Lancaster, 76103.

2nd—Alex. Nicholson, Lucknow. Red Daisy, Dec. 26, 1908. Sire, Golden Broadhooks, 62004.

Pure Bred or Grade or Cross Heifer, 1 year and under 2. Open to Amateurs. Seven Entries.

1st—Henry Nickle, Everton. Trixie, Jan. 10, 1910. Sire, Cochrane of Tweedhill, 1905.

2nd—Alex. Young, Glanford. Village Queen, 96361, March, 1910. Sire, Royal Prince, 31241; dam Village Missie, 74119.

3rd—Frank W. Smith, Scotland. Dalmeny's Lass, 97207, March 24, 1910. Sire, Bellerophon of Dalmeny (imp.), 94270; dam, Perfection, 83198.

4th—E. Brien & Son, Ridgetown. Nonpariel Princess, 69644. Feb. 22, 1910. Sire, Nonpariel Count, 53215. Dam, Lieutenant's Princess. 80669.

5th—J. W. Burt & Sons, Coningsby. Laura, Sept. 20, 1909. Sire, Grand Chief, 70560.

Pure Bred or Grade or Cross Heifer under 1 year. Open to Amateurs. Seven Entries.

1st—John M. Taylor, Guelph. English Lady 66, 96971, Oct. 21, 1910. Sire, Bud's Emblem, 63860; dam, English Lady 26th, 64216.

2nd—John Dickieson, Rockwood. Lady, Nov. 1, 1910. Sire, Eden Boy, 74062.

3rd—Wm. Murdoch, Elora. Black Beauty, Sept. 10, 1910. Sire, Middlebrook King, 3419.

4th—Alex. R. Wood, Fergus. Cherrie, Oct. 14, 1910. Sire, Prime Favorite, 76816.

5th—W. Powell, Ancaster. Beauty, March 2, 1911.

Three Export Steers Five Entries

1st—John Low, Elora. Sired by Middlebrook King, 3419.

2nd—John Brown & Sons, Galt.

GRAND CHAMPIONSHIPS.

Best Animal in Beef Cattle Department.

1st—Jos. Stone, Saintfield.

Best Beef Animal, any grade, shown by an amateur exhibitor, resident of the County of Lambton.

1st—F. W. Oke, Alvinston. 2nd—S. W. Edwards, Watford.

SPECIALS.

Best Beef Animal in Show.

1st—Jos. Stone, Guelph.

Aberdeen-Angus Steer or Heifer, 1 year and under 2.

1st—James Bowman, Guelph. 2nd—James Bowman, Guelph.

3rd—James Bowman, Guelph.

Aberdeen-Angus Steer, under 1 year.

1st—John Lowe, Elora.

Aberdeen-Angus Heifer, under 1 year.

1st—James Bowman, Guelph.

Canadian Aberdeen-Angus Association prize for the Best Grade Steer or Heifer, any age, sired by a pure-bred Aberdeen-Angus Bull.

1st—John Lowe, Elora.
2nd—John Lowe, Elora.
3rd—John Lowe, Elora.
4th—Henry Nickle, Everton.

Dominion Shorthorn Breeders' Association prize for the best Grade Steer, sired by pure-bred Shorthorn Bull.

1st—Jos. Stone, Guelph.
2nd—James Leask, Greenbank.
3rd—Jos. Stone, Guelph.

Dominion Shorthorn Breeders' Association prize for Best Grade Steer, sired by pure-bred Shorthorn Bull. Open to Amateurs only.

1st—F. W. Oke, Alvinston.,
2nd—J. M. Cornie, Fergus.
3rd—J. A. Lindsay, Fergus.

"Canadian Bank of Commerce" prize for Best Grade Steer or Heifer, fed in the County of Wellington, and owned by Exhibitor.

1st—John Lowe, Elora.
2nd—H. Nickle, Everton.

Best Beef Animal, under three years, shown by an Amateur Exhibitor, Resident of the County of Wellington.

1st—H. Nickle, Everton.
2nd—D. Wright, Ponsonby.

Best Beef Animal, shown by an Amateur Exhibitor, Resident of the County of Halton.

1st—James Simpson, Moffatt.

Best Beef Animal, shown by an Amateur Exhibitor, Resident of the County of Brant.

1st—Frank Smith, Scotland.

Best Beef Animal, shown by an Amateur Exhibitor, Resident of the County of Huron.

1st—R. McAllister, St. Augustine.

Best Beef Animal, Any Grade, Shown by an Amateur Exhibitor, Resident of the County of Lambton.

1st—F. W. Krouse, Alvinston.
2nd—S. W. Edwards, Watford.

SHEEP.

COTSWOLDS.

Ewe, under 1 year. Sixteen Entries.

1st—Norman Park, Newark. N. Park's 111, 66855, 1911.
2nd—J. H. Campbell & Son, Thedford. Campbell's 127, 67235, 1911.
3rd—J. C. Ross, Jarvis. Ross Ewe 529, 529, 1911.

Three Ewes, under 1 year. Five Entries.

1st—Norman Park, Newark.
2nd—J. C. Ross, Jarvis.
3rd—Henry Waters, R. R. No. 4, Guelph.

Wether, 1 year and under 2. Nine Entries.

1st—E. Brien & Son, Ridgetown. Brien's A, March, 1910. Sire, Shires 523, 42902; dam, Brien's 130, 43336.

2nd—E. Brien & Son, Ridgetown. Brien's B, March, 1910. Sire, Shires 523, 42902; dam, Brien's 130, 43336.

3rd—Henry Waters, Guelph. Waters' 56, Spring, 1910. Sire, Kirby's 100, 55672; dam, Waters 38, 45469.

4th—Henry Waters, Guelph. Waters' 55, Spring, 1910. Sire, Kirby's 100, 55672; dam, Water's 38, 45469.

Wether, under 1 year. Eighteen Entries.

1st—E. Brien & Sons, Ridgetown. Brien's D, March, 1911. Sire, Coopers 68 (imp.) 996; dam, Brien's 141, 43347.

2nd—J. H. Campbell & Son, Thedford. Campbell's 98, April, 1911. Sire, Campbell's 144, 64241; dam, Campbell's 68, 50482.

3rd—Norman Park, Newark. (————), 1911. Sire, Sangster 5, 61858; dam, Dewdrop 28625.

4th—Norman Park, Newark. (————), 1911. Sire, Dandy, 58436; dam Rosy, 42896.

Three Wethers, under 1 year. Six Entries.

1st—Norman Park, Newark.
2nd—E. Brien & Son, Ridgetown.
3rd—J. H. Campbell & Son, Thedford.
4th—Henry Waters, Guelph.

Best Wether, under 2 years..

1st—E. Brien & Son, Ridgetown.

COTSWOLD DRESSED CARCASSES.

Wether, 1 year and under 2. Seven Entries.

1st—E. F. Park, Burford.
2nd—E. F. Park, Burford.
3rd—J. H. Campbell & Son, Thedford.

Wether, under 1 year. Nine Entries.

1st—J. H. Campbell & Son, Thedford.
2nd—E. Brien & Son, Ridgetown.
3rd—Henry Waters, Guelph.

LINCOLNS.

Ewe, under 1 year. Twenty Entries.

1st—John S. Gosnell & Sons, Ridgetown. Gosnell's 20, 23564, 1911. Sire, Sir Marquis, 19924; dam, Gould's 32, 17376.

2nd—J. G. Lethbridge & Son, Alliance. Lethbridge's 12, 23150, March, 1911. Sire, Sir Donald, 19923; dam, Maid of Wedderburn 3rd, 14140.

3rd—J. G. Lethbridge & Son, Alliance. Lethbridge's 13, 23151, March, 1911. Sire, Sir Donald, 19923; dam, Maid of Wedderburn 3rd, 14140.

Three Ewes, under 1 year. Six Entries.

1st—J. G. Lethbridge & Son, Alliance.
2nd—John S. Gosnell & Sons, Ridgetown.
3rd—Herbert Lee, Highgate.

Wether, 1 year and under 2. Seven Entries.

1st—Herbert Lee, Highgate. (————), 1910. Sire, Boston, 18776; dam, Lady R. 15411.

2nd—Herbert Lee, Highgate. (————), 1910. Sire, Boston, 18776; dam, Miss G. 15413.

3rd—L. Parkinson, Guelph. Parkinson's 485, Spring, 1910. Sire, Game Boy, 15024; dam, Parkinson's 461, 13675.

4th—John S. Gosnell & Sons, Ridgetown. Togo, Spring, 1910. Sire, Dudding 265, (imp.) 11154; dam, Dudding Gem, 18872.

Wether, under 1 year. Nine Entries.

1st—Herbert Lee, Highgate. (————), 1911. Sire, Morris 80 (imp.), 19676; dam, Lady 19th, 17843.
2nd—L. Parkinson, Guelph. Parkinson's 945, Spring, 1911. Sire, Baron L. 18598; dam, Parkinson's 462, 13676.
3rd—John S. Gosnell & Sons, Ridgetown. Oxford, 1911. Sire, Sir Marquis, 19924; dam, Gosnell's No. 16, 20863.
4th—Herbert Lee, Highgate. (————), 1911. Sire, Morris 80 (imp.), 9676; dam, Lady R. 15411.

Three Wethers, under 1 year. Three Entries.

1st—Herbert Lee, Highgate. 2nd—John S. Gosnell & Sons, Ridgetown.
3rd—L. Parkinson, Guelph.

Best Wether, under 2 years.

1st—Herbert Lee, Highgate.

LINCOLN DRESSED CARCASSES.

Wether, 1 year and under 2. Four Entries.

1st—L. Parkinson, Guelph. 2nd—John S. Gosnell & Sons, Ridgetown.
3rd—Herbert Lee, Highgate.

Wether, under 1 year. Five Entries.

1st—Jno. S. Gosnell & Sons, Ridgetown. 2nd—Herbert Lee, Highgate.
3rd—L. Parkinson, Guelph.

LEICESTERS.

Ewe, under 1 year. Twelve Entries.

1st—A. & W. Whitelaw, Guelph. Lillian Aninson, 14254, March, 1911. Sire, Matt. Templeton, 11116; dam, Lilly Aninson 3385.
2nd—A. &. W. Whitelaw, Guelph. Lillian W. 4th, 14252, March, 1911. Sire, Mat Templeton, 11116; dam, Lillian W. 2nd, 12284.
3rd—A. & W. Whitelaw, Guelph. Daisy Templeton 14247, March, 1911. Sire, Ulysses, 10085; dam, Annie Templeton, 12281.

Three Ewes, under 1 year. Four Entries.

1st—A. & W. Whitelaw, Guelph. 2nd—W. T. Cudmore, Ridgetown.
3rd—John Barber, Salem.

Wether, 1 year and under 2. Five Entries.

1st—A. & W. Whitelaw, Guelph. (————), March, 1910. Sire, Ulysses, 10085; dam, Lady Hamilton, 7373.
2nd—John Barber, Salem. (————), April 3rd, 1910. Sire, Knight Templar, 11603; dam, Marjorie, 10278.
3rd—L. Parkinson, Guelph. Boyd 64, 13656, Spring, 1910. Sire, O. A. C. 1333, 9827; dam, Jean Boyd 9, 8799.
4th—John Kelly, Shakespeare. Alex., April, 1910. Sire, Kelly's 724, 12477; dam, Loyal Isabella, 11616.

Wether, under 1 year. Eight Entries.

1st—A. & W. Whitelaw, Guelph. Adam, March, 1911. Sire, Matt Templeton, 11116; dam, Polly Annison, 5728.
2nd—D. A. Graham, Wanstead. Jack, April 11th, 1911. Sire, Archiles 4th, 11121; dam, Lady No. 4, 13116.
3rd—A. & W. Whitelaw, Guelph. (......), April, 1911. Sire, Matt Templeton, 11116; dam, Polly Annison, 5728.
4th—A. & W. Whitelaw, Guelph. (......), April, 1911. Sire, Matt Templeton, 11116; dam, Helen Templeton 2nd, 12537.

Three Wethers, under 1 year. Two Entries.

1st—A. & W. Whitelaw, Guelph. 2nd—D. A. Graham, Wanstead.

Best Wether, under 2 years.

1st—A. & W. Whitelaw, Guelph.

LEICESTER DRESSED CARCASSES.

Wether, 1 year and under 2. One Entry.

1st—A. & W. Whitelaw, Guelph.

Wether, under 1 year. Four Entries.

1st—A. & W. Whitelaw, Guelph. 3rd—D. A. Graham, Wanstead.
2nd—A. & W. Whitelaw, Guelph.

OXFORDS.

Ewe, under 1 year. Seventeen Entries.

1st—Peter Arkell & Sons, Teeswater. Dolly A. 8 of 1911, 58674, March, 1911. Sire, Hamptonian, 277 A, 58670; dam, Dolly A. 27 of '04, 34174.

2nd—Fred. T. Lee, Simcoe. Hine's 434, 58170, February, 1911.

3rd—G. W. Witham, Villa Nova. Witham's 3, 59530, February, 1911. Sire, Adderbury Hugo, 46,496; dam Arkell's 2289, 52083.

Three Ewes, under 1 year. Five Entries.

1st—Peter Arkell & Sons, Teeswater. 2nd—G. W. Witham, Villa Nova.
3rd—J. A. Cerswell, Bond Head.

Wether, 1 year and under 2. Eleven Entries.

1st—Peter Arkell & Sons, Teeswater. Bruce 109 of 1910, 55654, April, 1910. Sire, Cowley Caution, 41088; dam, Dolly A. 96 of '08, 48879.

2nd—Fred T. Lee, Simcoe. Lee's 20, 55934, April, 1910.

3rd—Peter Arkell & Sons, Teeswater. Bruce 159 of 1910, 55657, April, 1910. Sire, Cawley Caution, 41088; dam, Teeswater Lady 77 of 1901, 26162.

4th—Peter Arkell & Sons, Teeswater. Mount View 295, 56829, March, 1910. Sire, Wadley 86, 38352; dam, Mount View 223, 52074.

Wether, under 1 year. Seventeen Entries.

1st—Peter Arkell & Sons, Teeswater. Bruce 307 of 1911, 59593, March, 1911. Sire, Hamptonian 277 A, 58670; dam, Dolly A.,, 39 of '05, 37629.

2nd—Peter Arkell & Sons, Teeswater. Bruce 300 of 1911, 59591, March, 1911. Sire, Hamptonian 277 A, 58670; dam, Teeswater Lady 10 of '02, 29462.

3rd—Peter Arkell & Sons, Teeswater. Bruce 304 of 1911, 59592, March, 1911. Sire, Hamptonian, 277 A, 58670; dam, Grieve's 70, 40056.

4th—Fred. T. Lee, Simcoe. Stewart's 158, 59627, April, 1911.

Three Wethers, under 1 year. Five Entries.

1st—Peter Arkell & Sons, Teeswater. 3rd—Fred. T. Lee, Simcoe.
2nd—Fred. T. Lee, Simcoe. 4th—J. A. Cerswell, Bond Head.

Wether under 2 years.

1st—Peter Arkell & Sons, Teeswater.

OXFORD DRESSED CARCASSES.

Wether, 1 year and under 2. Seven Entries.

1st—A Stevenson, Atwood. 2nd—Fred T. Lee, Simcoe.
3rd—J. A. Cerswell, Bond Head.

Wether under 1 year. Seven Entries.

1st—J. A. Cerswell, Bond Head. 2nd—J. A. Cerswell, Bond Head.
3rd—A. Stevenson, Atwood.

SHROPSHIRES.

Ewe, under 1 year. Twelve Entries.

1st—J. & D. J. Campbell, Woodville. Campbell's 1867, 342891, Spring, 1911.
2nd—J. & D. J. Campbell, Woodville. Campbell's 1874, 1278, Spring, 1911.
3rd—J. Lloyd-Jones, Burford. Lloyd-Jones 763, 343707, 1911.

Three Ewes, under 1 year. Four Entries.

1st—J. & D. J. Campbell, Woodville. 2nd—Thos. Hall, Bradford.
3rd—Robert Marshall, Elora.

Wether, 1 year and under 2. Six Entries.

1st—J. Lloyd-Jones, Burford. Kelsey's 75, 327130, 1910.
2nd—J. & D. J. Campbell, Woodville. Campbell's 1776, 325578, Spring, 1910.
3rd—J. Lloyd-Jones, Burford. J. L. J 685, 326976.
4th—J. & D. J. Campbell, Woodville. Campbell's 1786, 325579, Spring, 1910.

Wether, under 1 year. Eleven Entries.

1st—J. &. D. J. Campbell, Woodville. Campbell's 1862, 347660, Spring, 1911.
2nd—J. & D. J. Campbell, Woodville. Campbell's 1871, 347662, Spring, 1911.
3rd—J. Lloyd-Jones, Burford. Kelsey's 97, 344796, 1911.
4th—Robert Marshall, Elora. Marshall's 274, 348982, May 3rd, 1911.

Three Wethers, under 1 year. Three Entries.

1st—J. & D. J. Campbell, Woodville. 2nd—J. Lloyd-Jones, Burford.
3rd—Robert Marshall, Elora.

Best Wether, under 2 years..

1st—J. Lloyd-Jones, Burford.

SHROPSHIRE DRESSED CARCASSES.

Wether, 1 year and under 2. Two Entries.

1st—J. Lloyd-Jones, Burford. 2nd—J. & D. J. Campbell, Woodville.

Wether, under 1 year. Four Entries.

1st—J. Lloyd-Jones, Burford. 2nd—Robert Marshall, Elora.
3rd—W. E. Wright & Son, Glanworth.

SOUTHDOWNS.

Ewe, under 1 year. Thirteen Entries.

1st—Robert McEwen, Byron. McEwen's Ewe 68 in 11, 27845, March, 1911. Sire, Barrowman, 29 C, 26710; dam, McEwen's Ewe 141, 18461.

2nd—J. Lloyd-Jones, Burford. Lloyd-Jones' 13, 27917, 1911.

3rd—Robert McEwen, Byron. McEwen Ewe 30 in 11, 27839, March 24th, 1911. Sire, Balnahan Hector, 25012; dam, McEwen ewe 8 A, 23406.

Three Ewes, under 1 year. Four Entries.

1st—Robert McEwen, Byron. 2nd—J. Lloyd-Jones, Burford.
3rd—Geo. Baker, Simcoe.

Wether, 1 year and under 2. Ten Entries.

1st—Huntleywood Farm, Beaconsfield, Que. (————), 1589, 1910. Sire, Royal Derby, 21104; dam, Drummond Ewe, 1091.

2nd—Robert McEwen, Byron. Baker Wether 16, 27077, Spring, 1910. Sire, Douglas 60, 13764; dam, Baker Ewe 161, 21908.

3rd—J. Lloyd-Jones, Burford. Jackson's 27685, 1910.

4th—Huntleywood Farm, Beaconsfield, Que. (————), 1553, 1910. Sire, Balraham Hercules, 23701; dam, Drummond Ewe, 716.

Wether, under 1 year. Twenty-one Entries.

1st—Huntleywood Farm, Beaconsfield, Que. (————), 1615, 1911. Sire, Royal Champion, 21100; dam, Drummond Ewe, 1185.

2nd—Huntleywood Farm, Beaconsfield, Que. (————), 1617, 1911. Sire, Sandringham, 26558; dam, Drummond Ewe, 1449.

3rd—Huntleywood Farm, Beaconsfield, Que. (————), 1616, 1911. Sire, Sandringham, 26558; dam, Sandringham Ewe, 1152.

4th—J. Lloyd-Jones, Burford. Lloyd-Jones' 11, 1911. Sire, Garton Park K 62, 25500; dam, Baker, 201, 24740.

Three Wethers, under 1 year. Six Entries.

1st—Huntleywood Farm, Beaconsfield, Que.
2nd—J. Lloyd-Jones, Burford.
3rd—Geo. Baker, Simcoe.
4th—R. McEwen, Byron.

Best Wether, under 2 years.

1st Huntleywood Farm, Beaconsfield, Que.

SOUTHDOWN DRESSED CARCASSES.

Wether, 1 year and under 2. Six Entries.

1st—J. A. Cerswell, Bond Head.
2nd—J. Lloyd-Jones, Burford.
3rd—Geo. Baker, Simcoe.

Wether, under 1 year. Eight Entries.

1st—Robert McEwen, Byron.
2nd—J. Lloyd-Jones, Burford.
3rd—Geo. Baker, Simcoe.

DORSET HORNS.

Ewe, under 1 year. Five Entries.

1st—W. E. Wright & Son, Glanworth. Wright 501, 12224, December, 1910. Sire, Mapleview Prince 9540; dam, Hunter's 135, 8587.

2nd—R. H. Harding, Thorndale. Princess, 12262, November, 1910. Sire, Flower of Thorndale (Imp.), 10948; dam, Harding's 7 (Imp.), 7367.

3rd—W. E. Wright & Son, Glanworth. Homestead 86, 12219, March, 1911. Sire, Homestead 64, 8219; dam, Homestead 51, 8125.

Wether, 1 year and under 2. Four Entries.

1st—W. E. Wright & Son, Glanworth. Bartlett's 77, 11234, May, 1910. Sire, West Elgin, 9846; dam, Bartlett's 67, 6043.

2nd—R. H. Harding, Thorndale. Roosevelt, 11238, February, 1910. Sire, Cudmore, 1, 8534; dam, Harding's 3 (Imp.), 7363.

3rd—R. H. Harding, Thorndale. Teddy, 11237, February, 1910. Sire, Cudmore 1, 8534; dam, Harding 3 (Imp.), 7363.

Wether, under 1 year. Six Entries.

1st—R. H. Harding, Thorndale. Jack, January, 1911. Sire, Harding 86, 9011; dam, Harding's 38, 5460.

2nd—W. E. Wright & Son, Glanworth. Homestead 87, 12220, April, 1911. Sire, Homestead 64, 8219; dam, Homestead 52, 8126.

3rd—W. E. Wright & Son, Glanworth. Anderson's 5, 12454; April, 1911. Sire, Hunter's 101, 5533; dam, Lady, 5614.

Three Wethers, under 1 year. Two Entries.

1st—R. H. Harding, Thorndale. 2nd—W. E. Wright & Son, Glanworth.

Best Wether, under 2 years.

1st—W. E. Wright & Son, Glanworth.

DORSET HORN DRESSED CARCASSES.

Wether, 1 year and under 2. Four Entries.

1st—R. H. Harding, Thorndale. 3rd—W. E. Wright & Son, Glanworth.
2nd—R. H. Harding, Thorndale.

Wether, under 1 year. Four Entries.

1st—W. E. Wright & Son, Glanworth. 3rd—R. H. Harding, Thorndale.
2nd—R. H. Harding, Thorndale.

HAMPSHIRES AND SUFFOLKS.

Ewe, under 1 year. Four Entries.

1st—John Kelly, Shakespeare. Kelly's 88, 27983, March, 1911. Sire, Kelly's Sailor, 6764; dam, (————), 13420.

2nd—John Kelly, Shakespeare. Kelly's 89, 27984, March, 1911. Sire, Kelly's Sailor, 6764; dam (————), 13422.

3rd—James Bowman, Guelph. Bowman's 282, May, 1911. Sire, Bowman's 193, 1442; dam, H.C.J. 12th, 1031.

Wether, 1 year and under 2. Two Entries.

1st—John Kelly, Shakespeare. Bill, March, 1910. Sire, King's Sailor, 6764; dam, (————), 7218.

2nd—John Kelly, Shakespeare. Dick, March, 1910. Sire, King's Sailor, 6764; dam, (————), 3420.

Wether, under 1 year. Six Entries.

1st—John Kelly, Shakespeare. Tom, March, 1911. Sire, King's Sailor, 6764; dam, (————), 11594.

2nd—John Kelly, Shakespeare. Joe, March, 1911. Sire, King's Sailor, 6764; dam, (————), 13422.

3rd—John Kelly, Shakespeare. Jack, March, 1911. Sire, King's Sailor, 6764; dam, (————), 7218.

Three Wethers, under 1 year. Two Entries.

1st—John Kelly, Shakespeare. 2nd—Jas. Bowman, Guelph.

Best Wether, under 2 years.

1st—John Kelly, Shakespeare.

HAMPSHIRE OR SUFFOLK DRESSED CARCASSES.

Wether, 1 year and under 2. One Entry.

1st—John Kelly, Shakespeare.

Wether, under 1 year. Two Entries.

1st—John Kelly, Shakespeare. 2nd—Jas. Bowman, Guelph.

GRADES OR CROSSES, SIRED BY RAM OF A LONG-WOOLED BREED.

Wether, 1 year and under 2. Nine Entries.

1st—Herbert Lee, Highgate. Sire, Boston, 18776.
2nd—A. & W. Whitelaw, Guelph. (————), March, 1910. Sire, Ulysses Leicester, 10085.
3rd—Herbert Lee, Highgate. (————). Sire, Boston, 18776.

Wether, under 1 year. Eighteen Entries.

1st—J. G. Lethbridge & Son, Alliance. (————), March, 1911. Sire, Sir Donald, 19923.
2nd—L. Parkinson, Guelph. (————), Spring, 1911. Sire, Parkinson's 865, 21477.
3rd—J. G. Lethbridge & Son, Alliance. (————), March, 1911. Sire, Sir Donald, 19923.

Three Wethers, under 1 year. Five Entries.

1st—J. G. Lethbridge & Son, Alliance. 3rd—A. & W. Whitelaw, Guelph.
2nd—L. Parkinson, Guelph.

Best Wether, under 2 years.

1st—Herbert Lee, Highgate.

LONG-WOOLED GRADE OR CROSS, DRESSED CARCASSES.

Wether, 1 year and under 2. Five Entries.

1st—E. Brien & Son, Ridgetown. 3rd—E. Brien & Son, Ridgetown.
2nd—L. Parkinson, Guelph.

Wether, under 1 year. Nine Entries.

1st—Jno. S. Gosnell & Sons, Ridgetown. 3rd—L. Parkinson, Guelph.
2nd—A. & W. Whitelaw, Guelph.

GRADES OR CROSSES, SIRED BY A RAM OF A SHORT-WOOLED BREED.

Wether, 1 year and under 2. Fourteen Entries.

1st—J. Lloyd-Jones, Burford. (————), 1910. Sire, The Dazzle, 256368.
2nd—D. J. Campbell, Woodville. (————), No. 3, Spring, 1910. Sire, Kelsey's 39, 303558.
3rd—Geo. Baker, Simcoe. (————), 1910. Sire, Douglas 60, 13764.

Wether, under 1 year. Sixteen Entries.

1st—D. J. Campbell, Woodville. No. 4, Spring, 1911. Sire, Kelsey's 39, 303558.
2nd—J. Lloyd-Jones, Burford. (————). Sire, Dakin 124, 324324.
3rd—D. J. Campbell, Woodville. No. 6, Spring, 1911. Sire, Kelsey's 39, 303558.

Three Wethers, under 1 year. Four Entries.

1st—D. J. Campbell, Woodville. 3rd—Geo. Baker, Simcoe.
2nd—J. Lloyd-Jones, Burford.

Best Wether, under 2 years.

1st—J. Lloyd-Jones, Burford.

SHORT-WOOLED GRADE OR CROSS, DRESSED CARCASSES.

Wether, 1 year and under 2. Ten Entries.

1st—J. Lloyd-Jones, Burford. 3rd—Geo. Baker, Simcoe.
2nd—W. D. Monkman, Bond Head.

Wether, under 1 year. Seven Entries.

1st—Adam Thomson, Shakespeare.
2nd—D. J. Campbell, Woodville.
3rd—Adam Thomson, Shakespeare.

SPECIALS.

Best Pen of Five Lambs, any Breed, Grade or Cross.

1st—Peter Arkell & Sons, Teeswater.

Best Sheep, any Breed, shown by an Amateur Exhibitor, Resident of the County of Lambton.

1st—H. McLean, Wyoming.
2nd—H. McLean, Wyoming.

Best Sheep, any Age or Breed, shown by an Amateur Exhibitor, Resident of the County of Norfolk.

1st—G. W. Witham, Villa Nova.

LINCOLN SPECIAL PRIZES.

Ewe, under 1 year.

1st—Jno. S. Gosnell & Son, Ridgetown.
2nd—J. G. Lethbridge & Son, Alliance.
3rd—J. G. Lethbridge & Son, Alliance.
4th—J. G. Lethbridge & Son, Alliance.

Pen of Three Ewes, under 1 year.

1st—J. G. Lethbridge & Son, Alliance.
2nd—Jno. S. Gosnell & Son, Ridgetown.

Wether, 1 year and under 2.

1st—Herbert Lee, Highgate.
2nd—Herbert Lee, Highgate.
3rd—L. Parkinson, Guelph.

Wether, under 1 year.

1st—Herbert Lee, Highgate.
2nd—L. Parkinson, Guelph.
3rd—Jno. S. Gosnell & Son, Ridgetown.

Pen of Three Wethers, under 1 year.

1st—Herbert Lee, Highgate.
2nd—Jno. S. Gosnell & Son, Ridgetown.

Ewe, under 1 year, shown by an Amateur Exhibitor.

1st—J. G. Lethbridge & Son, Alliance.
2nd—J. G. Lethbridge & Son, Alliance.
3rd—J. G. Lethbridge & Son, Alliance.

Pen of Three Ewes, under 1 year, shown by an Amateur Exhibitor.

1st—J. G. Lethbridge & Son, Alliance.
2nd—Hugh McLean, Wyoming.

Grade Wether, 1 year and under 2.

1st—Herbert Lee, Highgate.
2nd—Herbert Lee, Highgate.
3rd—L. Parkinson, Guelph.

Grade Wether, under 1 year.

1st—J. G. Lethbridge & Son, Alliance.
2nd—L. Parkinson, Guelph.
3rd—J. G. Lethbridge & Son, Alliance.

Pen of Three Grade Wethers, under 1 year.

1st—J. G. Lethbridge & Son, Alliance.
2nd—L. Parkinson, Guelph.

LEICESTER SPECIAL PRIZE.

Pen of 3 Ewe Lambs, to be owned and bred by Exhibitor.

1st—W. T. Cudmore, Ridgetown.
2nd—D. A. Graham, Wanstead.

OXFORD SPECIAL PRIZES.

Yearling Wether.

1st—Peter Arkell & Son, Teeswater.
2nd—F. D. Lee, Simcoe.
3rd—Peter Arkell & Son.

Lamb Wether.

1st—Peter Arkell & Son, Teeswater.
2nd—Peter Arkell & Son.
3rd—Peter Arkell & Son.

Pen of Three Wether Lambs.

1st—Peter Arkell & Son, Teeswater.
2nd—F. D. Lee, Simcoe.
3rd—F. D. Lee, Simcoe.

Yearling Wether Carcass.

1st—A. Stevenson, Atwood.
2nd—Fred. T. Lee, Simcoe.
3rd—J. A. Cerswell, Bond Head.

Lamb Wether Carcass.

1st—J. A. Cerswell, Bond Head.
2nd—J. A. Cerswell.
3rd—A. Stevenson, Atwood.

SHROPSHIRE SPECIAL PRIZES.

Wether, pure-bred, 1 year and under 2.

1st—J. Lloyd-Jones, Burford.
2nd—J. & D. J. Campbell, Woodville.
3rd—J. Lloyd-Jones, Burford.
4th—J. & D. J. Campbell.

Wether, pure-bred, under 1 year.

1st—J. & D. J. Campbell, Woodville.
2nd—J. & D. J. Campbell, Woodville.
3rd—J. Lloyd-Jones, Burford.
4th—R. Marshall, Elora.

Wether, Grade, 1 year and under 2.

1st—J. Lloyd-Jones, Burford.
2nd—J. & D. J. Campbell, Woodville.
3rd—J. & D. J. Campbell.
4th—W. D. Monkman, Bond Head.

Wether, Grade, under 1 year.

1st—D. J. Campbell, Woodville.
2nd—J. Lloyd-Jones, Burford.
3rd—D. J. Campbell.
4th—D. J. Campbell.

SOUTHDOWN SPECIAL PRIZES.

Ewe, under 1 year.

1st Robert McEwen, Byron.
2nd—J. Lloyd-Jones, Burford.
3rd—Robert McEwen.

Pen of Three Ewes, under 1 year.

1st Robert McEwen, Byron.
2nd—J. Lloyd-Jones, Burford.
3rd—Geo. Baker, Simcoe.

Pen of Three Ewes, under 1 year, Get of One Ram and Bred by Exhibitor.

1st—J. Lloyd-Jones, Burford.
3rd—Geo. Baker, Simcoe.
2nd—Robert McEwen.

Wether, 1 year and under 2.

1st—Huntleywood Farm, Beaconsfield, Que.
3rd—J. Lloyd-Jones, Burford.
2nd—Robert McEwen, Byron.

Wether, under 1 year.

1st—Huntleywood Farm, Beaconsfield, Que.
3rd—Huntleywood Farm.
2nd—Huntleywood Farm.

Pen of Three Wethers, under 1 year.

1st—Huntleywood Farm, Beaconsfield, Que.
3rd—Geo. Baker, Simcoe.
2nd—J. Lloyd-Jones.

DORSET HORN SPECIAL PRIZES.

Wether, 1 year and under 2.

1st—W. E. Wright & Son, Glanworth.
2nd—R. H. Harding, Thorndale.

Wether, under 1 year.

1st—R. H. Harding, Thorndale.
2nd—W. E. Wright & Son, Glanworth.

Ewe, under 1 year.

1st—W. E. Wright & Son, Glanworth.
2nd—R. H. Harding, Thorndale.

Best Wether Any Age.

1st—W. E. Wright & Son, Glanworth.

Carcass, Wether, 1 year and under 2.

1st—R. H. Harding, Thorndale.

Carcass, Wether, under 1 year.

1st—W. E. Wright & Son, Glanworth.

SWINE.

YORKSHIRES.

Barrow, 6 months and under 9. Nine Entries.

1st—J. E. Brethour & Nephews, Burford. Oak Lodge Tom, April 3rd, 1911. Sire, Oak Lodge Banker, 317713; dam, Oak Lodge Princess 86th, 32706.

2nd—John Duck, Port Credit. Jim, March 12th, 1911. Sire, Chancellor, 29267; dam, Lakeview Princess Louise, 28669.

3rd—R. F. Duck & Sons, Port Credit. Jack, March 14th, 1911. Sire, Chancellor, 29267; dam, Lakeview Snowflake 7th, 28602.

4th—John Duck, Port Credit. Jolly, March 12th, 1911. Sire, Chancellor, 29267; dam, Lakeview Princess Louise, 28669.

Barrow, under 6 months. Seven Entries.

1st—J. E. Brethour & Nephews, Burford. Oak Lodge Dick, June 3rd, 1911. Sire, Oak Lodge Banker, 317713; dam, Oak Lodge Maiden 48th, 26857.

2nd—Jos. Featherston & Son, Streetsville. Pine Grove Bluster 2, June 2nd. Sire, Pine Grove Fashion 3rd, 20800; dam, Maple Grove Bess, 26408.

3rd—Matthew Wilson, Fergus. (————), June 1st, 1911. Sire, Monkland Joe 2nd, 26006; dam, Monkland Hollywell Lass 2nd, 24721.

4th—R. F. Duck & Sons, Port Credit. Bill, June 15th, 1911. Sire, Chancellor, 29267; dam, Lakeview Snowflake 6, 28601.

Sow, 9 months and under 15. Nine Entries.

1st—Jos. Featherston & Son, Streetsville. Pine Grove Rufford Bell 49, 33825, September 26th, 1910. Sire, Summer Hill Turk 7th, 24409; dam, Pine Grove Rufford Bell 42nd, 27526.

2nd—J. E. Brethour & Nephews, Burford. Oak Lodge Lady Frost 34th, 34921, January 30th, 1911.

3rd—J. E. Brethour & Nephews, Burford. Oak Lodge Lady Frost 35th, 34922, January 30th, 1911.

4th—John Duck, Port Credit. Etobicoke Violet, 34763, September 20th, 1910.

Sow, 6 months and under 9. Fourteen Entries.

1st—J. E. Brethour & Nephews, Burford. Oak Lodge Fame 68th, 34928, March 6th, 1911. Sire, Oak Lodge Banker, 317713; dam, Oak Lodge Fame 47th, 32552.

2nd—J. E. Brethour & Nephews, Burford. Oak Lodge Fame 69th, 34929.

3rd—J. E. Brethour & Nephews, Burford. Oak Lodge Fame 70th, 34930, March 6th, 1911.

4th—Jos. Featherston & Son, Streetsville. Pine Grove Duchess, 33828, March 7th. Sire, Brandow's Duke 3rd, 31846; dam, Pine Grove Rufford Bell 42nd, 27526.

Sow, under 6 months. Eleven Entries.

1st—R. F. Duck & Sons, Port Credit. Lakeview Rose 3, 34885, June 15th, 1911. Sire, Chancellor, 29267; dam, Lakeview Snowflake 6, 28601.

2nd—John Duck, Port Credit. Etobicoke Daisy 5th, 34770, June 14th, 1911.

3rd—Matthew Wilson, Fergus. Monkland Lucy 8th, 34995, June 4th, 1911. Sire, Monkland Joe 2nd, 26006; dam, Monkland Hollywell Lass 2nd, 24721.

4th—Jos. Featherston & Son, Streetsville. Pine Grove Bess 16th, 34892, June 2nd. Sire, Pine Grove Fashion 3rd, 20800; dam, Maple Grove Bess, 26408.

Three Pigs of one Litter, bred by Exhibitor.

1st—J. E. Brethour & Nephews, Burford. 3rd—R. F. Duck & Son, Port Credit.
2nd—J. E. Brethour & Nephews, Burford.

Best Barrow, Exhibited by an Amateur.

1st—J. H. Shellington, Harley.

Best Sow, exhibited by an Amateur.

1st—John H. Shellington, Harley. 2nd—John H. Shellington.

BERKSHIRES.

Barrow, 6 months and under 9. Seven Entries.

1st—P. J. McEwen, Kertch. Maple Lodge Perfection, March 20th, 1911. Sire, Maple Lodge Dick 25246; dam, Maple Lodge Lady 17679.

2nd—Adam Thomson, Shakespeare. No. 1. March 2nd, 1911. Sire, Duke Royal Duke 22036; dam, Lady Thomson 14831.

3rd—John Kelly, Shakespeare. Tim, March 18th, 1911. Sire, Duke Royal Duke 22036; dam, Kelly's 34, 19677.

Barrow, under 6 months. Eleven Entries.

1st—E. Brien & Son, Ridgetown. Best on, June 8th, 1911. Sire, Concord Star, 19270; dam, Brantford Duchess, 24593.

2nd—E. Brien & Son, Ridgetown. Bacon, June 8th, 1911. Sire, Concord Star, 19270; dam, Brantford Duchess, 24593.

3rd—Peter J. Sinclair, Brocksden. Brocksden Joe, June 1st, 1911. Sire, Prince of Quality, 24755; dam, Brocksden Belle, 24401.

Sow, 9 months and under 15. Eight Entries.

1st—John S. Cowan, Donegal. Fairview Ruby, 26572, November 2nd, 1910. Sire, Concord Blucher, 21009; dam, Maple Lodge Belle, 17225.

2nd—John Kelly, Shakespeare. Kelly's 67, 25602, September 23rd, 1910. Sire, Duke Royal Duke, 22036; dam, Kelly's 52, 21,385.

3rd—P. J. McEwen, Kertch. Maple Lodge Princess 3rd, 26555, September 2nd, 1910.

Sow 6 months and under 9. Fifteen Entries.

1st—P. J. McEwen, Kertch. Maple Lodge Lady 5th, 26556, March 20th, 1911.

2nd—Adam Thomson, Shakespeare. Royal Queen 2nd, 25886, March 2nd, 1911. Sire, Duke Royal Duke, 22036; dam, Lady Thomson, 14831.

3rd—John S. Cowan, Donegal. Fairview Winnie, 26575, March 10th, 1911. Sire, Concord Blucher, 21009; dam, Fairview Sunbeam, 20464.

Sow, under 6 months. Thirteen Entries.

1st—E. Brien & Son, Ridgetown. Woodburn Duchess, 26596, June 8th, 1911. Sire, Concord Star, 19270; dam, Brantford Duchess, 24593.

2nd—Adam Thomson, Shakespeare. Duke's Lady, 26493, June 2nd, 1911. Sire, Duke Royal Duke, 22036; dam, Thomson 1, 21,657.

3rd—P. J. McEwen, Kertch. Maple Lodge Princess 5th, 26559, June 21st, 1911.

Three Pigs of One Litter, bred by Exhibitor. Six Entries.

1st—E. Brien & Son, Ridgetown.
2nd—P. J. McEwen, Kertch.
3rd—John S. Cowan, Donegal.

Best Berkshire Barrow, exhibited by an Amateur.

1st—W.]. Cudmore, Ridgetown.
2nd—Peter J. Sinclair, Brocksden.
3rd—W. T. Cudmore.

Best Berkshire Sow, exhibited by an Amateur.

1st—W. T. Cudmore, Ridgetown.
2nd—H. H. Koelln & Son, Glen Allan.
3rd—A. S. Wilson, Ashgrove.

TAMWORTHS.

Barrow, 6 months and under 9. Four Entries.

1st—D. Douglas & Son, Mitchell. Longfellow, March 29th, 1911. Sire, Maplehurst King, 3904; dam, Cholderton, May, 5451.

2nd—Chas. Currie, Morriston. Dick, March 7th, 1911. Sire, College Patron No. 2, 6427; dam, Mount Pleasant Lena, 5501.

3rd—D. Douglas & Son, Mitchell. Sambo, April 20th, 1911. Sire, Springbrook Knowleking, 5938; dam, Ruth 3rd, 5429.

Barrow, under 6 months. Five Entries.

1st—D. Douglas & Son, Mitchell. Bill, June 20th, 1911. Sire, Hilton Golden Star, 5694; dam, Maplehurst Amber, 6083.

2nd—D. Douglas & Son, Mitchell. Bob, June 20th, 1911. Sire, Hilton Golden Star, 5694; dam, Maplehurst Amber, 6083.

3rd—Chas. Currie, Morriston. James, June 7th, 1911. Sire, College Patron No. 2, 6427; dam, Morriston Lady, 5201.

Sow, 9 months and under 15. Five Entries.

1st—D. Douglas & Son, Mitchell. Maplehurst Matilda, 7278, September 1st, 1910. Sire, Hilton Golden Star, 5694; dam, Maplehurst Jess, 4856.

2nd—D. Douglas & Son, Mitchell. Maplehurst Matilda 2nd, 7279. September 1st, 1910. Sire, Hilton Golden Star, 5694; dam, Maplehurst Jess, 4856.

3rd—Chas. Currie, Morriston. Morriston Clara, 7247, September 5th, 1910.

Sow, 6 months and under 9. Six Entries.

1st—D. Douglas & Son, Mitchell. Maplehurst Beatrice, 7275, March 29th, 1911. Sire, Maplehurst King, 3904; dam, Chalderton May, 5451.
2nd—D. Douglas & Son, Mitchell. Maplehurst Henrietta, 7276, March 29th, 1911. Sire, Maplehurst King, 3904; dam, Chalderton May, 5451.
3rd—Chas. Currie, Morriston. Morriston Jane, 7244, March 7th, 1911.

Sow, under 6 months. Six Entries.

1st—D. Douglas & Son, Mitchell. Maplehurst Golden Fern, 7280, June 20th, 1911. Sire, Hilton Golden Star, 5694; dam, Maplehurst Amber, 6083.
2nd—D. Douglas & Son, Mitchell. Maplehurst Winnie, June 20th, 1911. Sire, Hilton Golden Star, 5694; dam, Maplehurst Amber, 6083.
3rd—D. Douglas & Son, Mitchell. Maplehurst Eva, 7282, June 20th, 1911. Sire, Hilton Golden Star, 5694; dam, Maplehurst Amber, 6083.

Three pigs of one litter, bred by Exhibitor. Four Entries.

1st—D. Douglas & Son, Mitchell. 2nd—D. Douglas & Son.

CHESTER WHITES.

Barrow, 6 months and under 9. Four Entries.

1st—Daniel DeCourcy, Bornholm. Borden, March 25th. Sire, Rizzio, 5321; dam, Silver Beauty, 5775.
2nd—Daniel DeCourcy, Bornholm. Laurier, March 25th. Sire, Rizzio, 5321; dam, Silver Beauty, 5775.
3rd—W. E. Wright & Son, Glanworth. Jock, March 3rd, 1911. Sire, White Boy, 6477; dam, Dolly, 5766.

Barrow, under 6 months. Four Entries.

1st—Daniel DeCourcy, Bornholm. Stock, June 18th. Sire, Rizzio, 5321; dam, Canadian Queen, 6405.
2nd—Daniel DeCourcy, Bornholm. Bennway, June 18th. Sire, Rizzio, 5321; dam, Canadian Queen, 6405.
3rd—W. E. Wright & Son, Glanworth. Tom, June 4th, 1911. Sire, White Boy, 6477; dam, Sally Ann, 5790.

Sow, 9 months and under 15. Three Entries.

1st—W. E. Wright & Son, Glanworth. Queenie, 7363, October 15th, 1910. Sire, Sandy, 5788; dam, Glanworth Belle, 4134.
2nd—Daniel DeCourcy, Bornholm. Susie, 7339, November 14th, 1910. Sire, Rizzio, 5321; dam, Model Sow, 5214.
3rd—Daniel DeCourcy, Bornholm. Sally, 7340, November 14th, 1910. Sire, Rizzio, 5321;; dam, Model Sow, 5214.

Sow, 6 months and under 9. Four Entries.

1st—Daniel DeCourcy, Bornholm. I. Know, 7547, March 25th. Sire, Rizzio, 5321; dam, Silver Beauty, 5775.
2nd—Daniel DeCourcy, Bornholm. W. Know, 7548, March 25th. Sire, Rizzio, 5321; dam, Silver Beauty, 5775.
3rd—W. E. Wright & Son, Glanworth. Rosie May, 7340, March 3rd, 1911. Sire, White Boy, 6477; dam, Dolly, 5766.

Sow, under 6 months. Four Entries.

1st—Daniel DeCourcy, Bornholm. Honest Kate, 7583, June 18th. Sire, Rizzio, 5321; dam, Canadian Queen, 6405.
2nd—W. E. Wright & Son, Glanworth. Polly Ann 7622, June 4th, 1911. Sire, White Boy, 6477; dam, Sally Ann, 5790.
3rd—W. E. Wright & Son, Glanworth. Glanworth Daisy, 7621, June 4th, 1911. Sire, White Boy, 6477; dam, Sally Ann, 5790.

Three Pigs of one Litter, bred by Exhibitor. Three Entries.

1st—Daniel DeCourcy, Bornholm. 2nd—Daniel DeCourcy.

ANY OTHER BREED, GRADE OR CROSS.

Barrow, 6 months and under 9. Six Entries.

1st—John Duck, Port Credit. (————), March 14th, 1911.
2nd—Chas. Currie, Morriston. Frederick 2nd, March 9th, 1911.
3rd—Chas. Currie, Morriston. Frederick, March 9th, 1911.
4th—D. Douglas & Son, Mitchell. (————), April, 1911.

Barrow, under 6 months. Eight Entries.

1st—Daniel DeCourcy, Bornholm.
2nd—D. Douglas & Sons, Mitchell. (————), June 19th, 1911.
3rd—Henry Wilson, Ashgrove. (————), June 25th, 1911.
4th—H. Koelln & Son, Glen Allan. (————), June 10th, 1911.

Sow, 6 months and under 9. Eight Entries.

1st—D. Douglas & Son, Mitchell. (————), April, 1911.
2nd—John Duck, Port Credit. (————), March 14th, 1911.
3rd—Jos. Featherston & Son, Streetsville. Pine Grove Ela, March 4th, 1911.
4th—Chas. Currie, Morriston. Molly, March 9th, 1911.

Sow, under 6 months. Eight Entries.

1st—D. Douglas & Son, Mitchell. (————), June, 1911.
2nd—John S. Cowan, Donegal. Fairview Lill, June 7th, 1911.
3rd—Daniel DeCourcy, Bornholm.
4th—Jos. Featherston & Son, Streetsville. Pine Grove Siss, June 15th.

EXPORT BACON HOGS.

Two Pure-Breds. Twenty-Four Entries.

1st—J. E. Brethour & Nephews, Burford.
2nd—R. F. Duck & Sons, Port Credit.
3rd—John Duck, Port Credit.
4th—Jos. Featherston & Son, Streetsville.
5th—Matthew Wilson, Fergus.
6th—R. F. Duck & Sons.
7th—J. E. Brethour & Nephews.
8th—Jos Featherston & Son.
9th—D. Douglas & Son, Mitchell.

Two Grades or Crosses. Eighteen Entries.

1st—Jos. Featherston & Son, Streetsville.
2nd—John Duck, Port Credit.
3rd—R. F. Duck & Sons, Port Credit.
4th—Matthew Wilson, Fergus.
5th—Jos. Featherston & Son.

Two Best Export Bacon Hogs. (Alive)

1st—J. E. Brethour & Nephews, Burford.

DRESSED CARCASSES.

Two Pure-Breds. Twenty-one Entries.

1st—R. F. Duck & Son, Port Credit.
2nd—J. E. Brethour & Nephews, Burford.
3rd—John H. Shellington, Harley.
4th—R. F. Duck & Son.
5th—Wm. Murdock, Palmerston.
6th—Jos. Featherston & Son.
7th—J. E. Brethour & Nephews.
8th—J. E. Brethour & Nephews.
9th—Jos. Featherston & Son.

Two Grades or Crosses. Seventeen Entries.

1st—J. E. Brethour & Nephews.
2nd—Henry Wilson, Ashgrove.
3rd—John H. Shellington.
4th—Joseph Featherston & Son.
5th—John Duck, Port Credit.

Two Best Carcasses of Export Bacon Hogs.

1st—R. F. Duck & Sons, Port Credit.

Special Prizes.

Best Bacon Hog, shown by an amateur exhibitor, resident of the County of Halton.

1st—Henry Wilson, Ashgrove.

Best Bacon Hog, shown by an amateur Exhibitor, resident of the County of Brant

1st—John H. Shellington, Harley.

JUDGING COMPETITION.

Horses.

1st—F. D. Shaver,	O.A.C., Guelph.	6th—H. L. Phillips,	O.A.C., Guelph.
2nd—R. M. Tipper,	“ “	7th—R. Dougall,	“ “
3rd—C. M. Graham,	“ “	8th—E. J. Henderson,	Belton.
4th—W. H. Ross,	“ “	9th—G. C. Duff,	O.A.C., Guelph.
5th—A. C. McCulloch,	“ “	10th—J. N. Hotson,	“ “

Beef Cattle.

1st—H. L. Phillips,	O.A.C., Guelph.	6th—R. Schuyler,	O.A.C., Guelph.
2nd—W. G. Nixon,	“ “	7th—J. A. Craig,	“ “
3rd—R. M. Tipper,	“ “	8th—J. W. Allan,	“ “
4th—A. M. Bosman,	“ “	9th—H. S. Steckle,	“ “
5th—A. W. Sirrett,	“ “	10th—G. C. Ellis,	“ “

Dairy Cattle.

1st—J. Iwanann,	O.A.C., Guelph.	6th—C. A. Tregillus,	O.A.C., Guelph.
2nd—J. T. Barnet,	“ “	7th—C. M. Laidlaw,	“ “
3rd—W. C. Hinman,	“ “	8th—E. F. Neff,	“ “
4th—W. Davison,	“ “	9th—J. M. Sorby,	“ “
5th—R. Schuyler,	“ “	10th—R. B. Hinman,	“ “

Sheep.

1st—C. W. Stanley,	O.A.C., Guelph.	6th—R. B. Hinman,	O.A.C., Guelph.
2nd—A. M. Bosman,	“ “	7th—J. T. Barnet,	“ “
3rd—E. C. Batty,	“ “	8th—F. T. Walker,	“ “
4th—H. Costro-Zinny,	“ “	9th—J. T. Lethbridge,	Alliance.
5th—G. O. Madden,	“ “	10th—R. S. Beckett,	O.A.C., Guelph.

Swine.

1st—R. A. Templer,	Burford.	6th—G. M. Cormie,	O.A.C., Guelph.
2nd—R. L. Vining,	O.A.C., Guelph.	7th—W. M. Aikenhead,	“ “
3rd—E. C. Ellis,	“ “	8th—J. Kyona,	“ “
4th—F. E. Millen,	“ “	9th—M. Kelleher,	“ “
5th—J. E. McRostie,	“ “	10th—E. Lindsay,	“ “

DAIRY TEST AT WINTER FAIR, GUELPH, 1911.

Name of Animal and Exhibitor.	Lbs. Milk.	% Fat.	Lbs. Fat.	Lbs. Solids not Fat.	Points for Day's Milking.	Points for Fat.	Points for Solids not Fat.	Total Points.
Class 45. Sec. 2.—Shorthorn Cow. 36 months and under 48.								
2nd, Vacuna 45th, 88501, D. A. Graham, Wanstead	87.4	4.0	3.496	7.8854	2.0	87.40	23.650	113.05
Class 46, Sec. 1.—Ayrshire Cow, 48 months and over.								
1st, Snowdrop of Hickory Hill, 23599, N. Dyment, Hamilton	175.8	4.6	8.0868	16.38456	....	202.17	49.15368	251.32368
2nd, White Floss, 13597, A. S. Turner & Sons, Rickman's Corners	166.9	4.3	7.1767	15.605	....	179.617	46.815	226.432
3rd, Briery of Springbank, 29616, A. S. Turner & Sons	188.6	3.5	6.601	17.0211	1.9	165.025	51.0633	216.0883
4th. Barcheskie Lucky Girl, 21363, R. R. Ness, Howick, Que.	169.6	3.5	5.9360	15.772	....	148.40	47.316	195.716
5th, Victoria, 13788, Hector Gordon, Howick, Que.	162.2	3.7	6.0014	14.8818	....	150.035	44.645	194.67065
6th, White Rose 2nd, 17841, Hector Gordon, Howick, Que	154.3	3.7	5,7081	14.8918	....	142.702	44.675	187.3774
Class 46.—Sec. 2.—Ayrshire Cow, 36 months and under 48.								
1st, Burnside Lucky Girl 2nd, 30847, R. R. Ness, Howick, Que.	136.6	3.6	4,9176	12.703	....	122.940	38.1114	161.0514
2nd, Ayrshire Beauty of Ruse, 27034, Wm. Thorn, Lynedoch	112.2	3.9	4.3758	10.4907	5.5	109.395	31.4721	146.3671
3rd, Burnside Silver Bell, 24664, R. R. Ness, Howick, Que.	105.6	3.6	3,8016	9.8419	3.8	95.040	29.525	128.36576
4th, Heather Bell of Hickory Hill, 31978, N. Dyment, Hamilton	99.6	3.9	3.8844	9.0636	2.9	97.11	27.1908	127.2008
Class 46, Sec. 3.—Ayrshire Heifer, under 36 months.								
1st, Violet of Hillview 2nd, 29844, N. Dyment, Hamilton	123.4	3.8	4.6892	11.229	8.3	117.230	33.688	159.218
2nd, Blossom of Springbank, 33621, A. S. Turner & Sons	114.3	3.8	4,3434	10.4013	1.3	108.585	31.2039	141.0889
3rd, Burnside Cherry Queen, 34618, R. R. Ness, Howick, Que.	94.2	4.4	4.1448	8.6935	....	103.620	26.0805	129.7005
4th, Lessnessock Flossie, 33248, D. T. Ness, Howick, Que.	105.4	3.7	3,899	9.56505	0.4	97.475	28.69575	126.57015
5th, White Heather, 28782, Wm. Thorn, Lynedoch	92.4	4.3	3.9732	8.8011	....	99.33	26.4033	125.733
6th, Hobsland Pansy, 30738, Hector Gordon, Howick, Que	92.5	4.0	3.7000	8.6718	6.5	92.50	26.0154	125.0154
Class 47, Sec. 1.—Holstein Cow, 48 months and over.								
1st, Olive Schuiling Posch, 6960, Jas. Rettie, Norwich	233.0	3.6	8.388	21.02825	....	209.703	63.08475	272.78775
2nd, Mysa, 6551, A. E. Hulet, Norwich	185.9	4.2	7.807	16.823	....	195.195	50.469	245.6645
3rd, Aggie Cornelia Posch, 7501, M. L. Haley, Springford	204.3	3.8	7.763	17.2635	....	194.085	34.5267	228.6117
4th, Spinks Butter Girl, 8635, H. F. Patterson, Alford Jct.	173.7	4.0	6.948	15.407	....	173.70	46.221	219.92157
5th, Idaline Pauline DeKol, 10083, R. J. Kelly, Tillsonburg	209.6	3.0	6.288	16.608	....	156.2	49.824	206.024
6th, Queen DeKol Posch 5584, M. H. Haley, Springford	167.2	3.7	6.186	14.914	....	154.65	44.742	199.392
7th, Alice E. Netherland, 4582, L. H. Lipsit, Straffordville	166.8	3.5	5.838	16.429	....	145.950	49.287	195.241
8th, Houwtje Calamity Posch, 7407, E. Laidlaw & Sons, Aylmer, W...	185.7	3.0	5.5710	16.4344	0.5	139.275	49.3033	189.07835

DAIRY TEST AT WINTER FAIR, GUELPH, 1911—Continued.

Name of Animal and Exhibitor.	Lbs. Milk.	% Fat.	Lbs. Fat.	Lbs. Solids not Fat.	Points for day's Milking.	Points for Fat.	Points for Solids not Fat.	Total Points.
Class 47, Sec. 2.—Holstein Cow, 36 months and under 48.								
1st, Lady Adekerk DeKol, 8603, E. Laidlaw & Sons, Aylmer	193.5	3.6	6.966	17.453	0.4	174.150	52.36	226.91
2nd, Madame Posch Pauline, 10291, A. E. Hulet, Norwich	200.4	3.4	6.813	17.274	....	170.34	51.824	222.16
3rd, Dot of Elmwood, 10046, R. J. Kelly, Tillsonburg................	192.7	3.5	6.7445	17.343	....	168.6125	52.029	220.6415
4th, Marcena Artalissa, 9987, M. H. Haley, Springford	178.1	3.6	6.411	15.850	0.5	160.290	47.45	208.245
5th, Homewood Queen, 9382, M. L. Haley, Springford................	152.1	4.1	6.236	14.297	....	155.9	42.891	198.791
6th, Hilda of Nober, 10023, W. J. Bailey, Nober.....................	158.9	3.8	6.0382	15.413	....	150.955	46.239	197.194
7th, Lady Lassie Gertqui, 10494, E. Laidlaw & Sons, Aylmer, W.	164.6	3.6	5.9256	15.4724	....	148.14	46.4172	194.5572
Class 47, Sec. 3.—Holstein Heifer, under 36 months.								
1st, National Queen DeKol, 10134, E. Laidlaw & Sons, Aylmer, W. ...	215.1	3.4	7.3134	18.767	....	182.835	56.301	239.136
2nd, Buffalo Girl Butter Maid, 11651, Tig Wood, Mitchell...........	153.6	4.2	6.4512	14.85312	....	161.28	44.55936	205.83936
3rd, Netherland Beauty Posch, 11047, W. H. Cherry, Garnet.........	166.6	3.7	6.1642	15.903	....	154.105	47.7279	201.832
4th, Daisy Posch, 11046, W. J. Bailey, Nober	153.2	3.7	5.6684	14.43144	0.6	141.71	43.29432	185.60432
5th, Aggie de Boer, 12835, M. H. Haley, Springford	154.1	3.7	5.701	14.1309	....	142.5425	42.3927	184.9352
6th, Rhetta DeKol, 13746, E. Laidlaw & Sons, Aylmer, W............	143.5	3.8	5.453	13.22	2.1	136.325	39.606	178.31
7th, Hillview Jean DeKol, 14234, E. Laidlaw & Sons, Aylmer, W.....	133.1	3.7	4.9247	12.045	2.5	123.127	36.135	161.762
8th, Homewood Calamity Queen, 12265, M. L. Haley, Springford	114.7	4.1	4.7027	10.91944	....	117.5675	32.75832	150.32582
Class 50, Sec. 1.—Grade Cow, 48 months and over.								
1st, Burnside Delight, R. R. Ness, Howick, Que.	169.1	3.6	6.0876	15.5840	1.5	152.18	46.752	200.432

SEEDS.

Fall Wheat, White, Any Variety. Eight Entries.

1st—R. & A. Oliver, Galt.
2nd—P. J. McEwen, Kertch.
3rd—Jas. W. Edgar, Gorrie.
4th—Geo. Baker, Simcoe.

Fall Wheat, Red or Amber, Any Variety. Nine Entries.

1st—P. J. McEwen, Kertch.
2nd—D. H. Taylor, Corwhin.
3rd—J. M. Fischer, Mildmay.
4th—Andrew Schmidt, Mildmay.

Spring Wheat, Any Variety. One Entry.

1st—Alex. R. Wood, Fergus.

Goose Wheat. Four Entries.

1st—Wm. Naismith, Falkenburg Sta.
2nd—Alex. R. Wood, Fergus.
3rd—Geo. E. Foster, Honeywood.
4th—Thos. B. Lush, Barrie Hill.

Oats, White, Any Variety. Seventeen Entries.

1st—J. A. Cockburn, Aberfoyle.
2nd—N. P. Schmidt, Mildmay.
3rd—Andrew Schmidt, Mildmay.
4th—J. A. McSloy, St. Catharines.

Oats, Black, Any Variety. Four Entries.

1st—N. P. Schmidt, Mildmay.
2nd—Thos. B. Lush, Barrie Hill.
3rd—Andrew Schmidt, Mildmay.
4th—L. B. Hankinson, Aylmer West.

Barley, Any Six-Rowed Variety. Twelve Entries.

1st—J. M. Fischer, Mildmay.
2nd—Andrew Schmidt, Mildmay.
3rd—Foyston Bros., Minesing.
4th—N. P. Schmidt, Mildmay.

Rye. One Entry.

1st—Herman L. Goltz, Bardsville.

Buck Wheat. One Entry.

1st—Alex. R. Wood, Fergus.

Field Peas, Any Large Variety. One Entry.

1st—Peter McLaren, Ospringe.

Field Peas, Any Small Variety. Six Entries.

1st—Peter McLaren, Ospringe.
2nd—Robert O. Talbot, Guelph.
3rd—Jas. W. Edgar, Gorrie.
4th—Foyston Bros., Minesing.

Beans, Any Field Variety. Three Entries.

1st—Jno. S. Gosnell & Sons, Ridgetown.
2nd—Arch. Maccoll, Aldboro.

Red Clover. Three Entries.

1st—J. A. Fletcher, Valetta.
2nd—Frank A. Smith, Grovesend.

Alsike. Three Entries.

1st—Geo. Baker, Simcoe.
2nd—J. A. Fletcher, Valetta.

Timothy. Four Entries.

1st—J. A. Fletcher, Valetta.
2nd—J. M. Fischer, Mildmay.
3rd—Andrew Schmidt, Mildmay.
4th—Jno. W. Kerr, Morriston.

Potatoes, Long White Type. Six Entries.

1st—Wm. Naismith, Falkenburg Sta.
2nd—Alfred Hutchison, Mt. Forest.
3rd—Fletcher Walker, Royston.
4th—Herman L. Goltz, Bardsville.

Potatoes, Round White Type. Ten Entries.

1st—Wm. Naismith, Falkenburg Sta.
2nd—J. M. Fischer, Mildmay.
3rd—Andrew Schmidt, Mildmay.
4th—Alex. R. Wood, Fergus.

Potatoes, Other Than White. Eight Entries.

1st—Wm. Naismith, Falkenburg Sta.
2nd—Herman L. Goltz, Bardsville.
3rd—Alex. R. Wood, Fergus.
4th—J. M. Fischer, Mildmay.

Best Ten Ears Corn, Any Eight-Rowed Variety Flint. Six Entries.

1st—L. B. Hankinson, Aylmer West.
2nd—Arch. Maccoll, Aldboro.
3rd—Geo. Baker, Simcoe.
4th—Walter C. Anderson, Malden Centre

Best Ten Ears Corn, Any Twelve-Rowed Variety Flint. Eight Entries.

1st—Frank A. Smith, Grovesend.
2nd—Duncan Carmichael, West Lorne.
3rd—Arch Maccoll, West Lorne.
4th—Edward Smith, Ridgetown.

Best Ten Ears Corn, Any Dent Variety, White. (W. C. Y. Dent included). Nine Entries.

1st—Edward J. Mullins, Woodslee.
2nd—A. G. Billings, North Ridge.
3rd—W. C. Anderson, Malden Centre.
4th—Frank A. Smith, Grovesend.

Best Ten Ears Corn, Any Dent Variety, Yellow. Twelve Entries.

1st—Arch. Maccoll, West Lorne.
2nd—Frank A. Smith, Grovesend.
3rd—W. C. Anderson, Malden Centre.
4th—F. W. Makins, Valetta.

Sweet Corn. Two Entries.

1st—Leonard B. Hankinson, Aylmer West.

SPECIAL PRIZES.

Best Bushel Alsike Clover Seed.

1st—Geo. Baker, Simcoe.

SPECIAL PRIZES OF THE CANADIAN SEED GROWERS' ASSOCIATION.

Fall Wheat, Sheaf Exhibits. Two Entries.

1st—T. J. Shepley, Ouvry.
2nd—John Hunter, Wyoming.

Spring Wheat, Sheaf Exhibits. One Entry.

1st—N. P. Schmidt, Mildmay.

White Oats, Sheaf Exhibits. Three Entries.

1st—N. P. Schmidt, Mildmay.
2nd—Andrew Schmidt, Mildmay.
3rd—C. R. Gies, Heidelburg.

Barley, Six-Rowed, Sheaf Exhibits. Three Entries.

1st—T. J. Shepley, Ouvry.
2nd—A. Schmidt, Mildmay.
3rd—John Hunter, Wyoming.

Fall Wheat, Any Variety, Group Exhibits. Two Entries.

1st—C. R. Gies, Heidelburg.
2nd—D. Carmichael, West Lorne.

Spring Wheat, Any Variety, Group Exhibits. Two Entries.

1st—Robert McKay, Maxville.

White Oats, Any Variety, Group Exhibits. Six Entries.

1st—Duncan Carmichael, West Lorne.
2nd—T. J. Shepley, Ouvry.
3rd—Wm. L. Dixon, Dromore.
4th—John Hunter, Wyoming.

Barley, Six-Rowed, Any Variety, Group Exhibits. Five Entries.

1st—D. Carmichael, West Lorne.
2nd—N. P. Schmidt, Mildmay.
3rd—Alfred Hutchison, Mt. Forest.
4th—W. T. Fraser, Bradford.

Corn, Best Ten Ears, Any Eight-Rowed Variety Flint, from Hand-Selected Seed Plot. Three Entries.

1st—Robert Thompson, St. Catharines.
2nd—L. B. Hankinson, Aylmer West.
3rd—Arch Maccoll, Aldboro.

Corn, Best Ten Ears, Any Twelve-Rowed Variety Flint, from Hand-Selected Seed Plot. Four Entries.

1st—D. Carmichael, West Lorne.
2nd—Arch Maccoll, Aldboro.
3rd—Edward Smith, Ridgetown.

Corn, Best Ten Ears, Any Variety White Dent, (W.C.Y.D. included) from Hand-Selected Seed Plot. Four Entries.

1st—L. B Hankinson, Aylmer West.
2nd—T. J. Shepley, Ouvry.

Corn, Best Ten Ears, Any Variety, Yellow Dent, from Hand-Selected Seed Plot. Seven Entries.

1st—G. W. Coatsworth & Son, Kingsville.
2nd—T. J. Shepley, Ouvry.
3rd—G. W. Woodbridge, Kingsville.
4th—J. A. Fletcher, Valetta.

Corn, Best Ten Ears, Any Variety, Sweet (Early), from Hand-Selected Seed Plot. Three Entries.

1st—Chas. Pearce, Wellington.
2nd—Andrew Schmidt, Mildmay.

Corn, Best Ten Ears, Any Twelve-Rowed Variety Flint, shown by a beginner. Two Entries.

1st—Andrew Schmidt, Mildmay.

Corn, Best Ten Ears, Any Variety, White Dent, shown by a beginner. Three Entries.

1st—Edward J. Mullins, Woodslee
2nd—L. B. Hankinson, Aylmer West.
3rd—J. Hunter, Wyoming.

Corn, Best Ten Ears, Any Variety, Yellow Dent (W.C.Y.D. included), shown by a beginner. Four Entries.

1st—Jas. Martin, Amherstburg.
2nd—Frank A. Smith, Grovesend.
3rd—L. B. Hankinson, Aylmer West.

Corn, Best Ten Ears, Any Variety Sweet Corn (late), shown by a beginner. Three Entries.

1st—Thos. Affleck, Kingsville.
2nd—N. P. Schmidt, Mildmay.

Best Bushel Potatoes, Round White Type, from Hand-Selected Seed Plot. Three Entries.

1st—Wm. Naismith, Falkenburg.
2nd—Herman L. Goltz, Bardsville.
3rd—Alfred Hutchison, Mt. Forest.

Best Bushel Potatoes, Long White Type, from Hand-Selected Seed Plot. Three Entries.

1st—Herman L. Goltz, Bardsville.
2nd—Alfred Hutchison, Mt. Forest.
3rd—Wm. Naismith, Falkenburg Sta.

Potatoes, Best Bushel, Rose Type, from Hand-Selected Seed Plot. Two Entries.

1st—Wm. Naismith, Falkenburg Sta.
2nd—Herman L. Goltz, Bardsville.

Best Twenty-five Ears Dent Corn, Any Variety, Grown in Ontario, 1911, on Hand-Selected Seed Plot.

1st—T. J. Shepley, Ouvry.

Best Exhibit of Twenty-five Ears of Flint Corn, Grown in Ontario, 1911, on Hand-Selected Seed Plot.

1st—E. Smith, Ridgetown.

Sweepstake, Special for Member making the Most Creditable Showing of Selected Seed (Corn not included).

1st—Duncan Carmichael, West Lorne.

POULTRY.

LIST GIVES NUMBER OF ENTRIES AND WINNERS IN EACH SECTION.

For Post Office Addresses of Winners see List of Members of the Western Ontario Poultry Association, Appendix, page 326.

LIGHT BRAHMAS.

Cocks, 8.—1st, Douglas T. Taylor; 2nd, J. M. Buck; 3rd, Jas. Meldrum.
Hens, 10.—1st and 2nd, Douglas T. Taylor; 3rd, J. M. Buck.
Cockerels, 9.—1st, 2nd and 3rd, Douglas T. Taylor.
Pullets, 8.—1st, 2nd and 3rd, Douglas T. Taylor.
Best Male, best female and best collection, Douglas T. Taylor.

DARK BRAHMAS.

Cocks, 4.—1st and 2nd, C. A. R. Tilt; 3rd, C. H. Wilson.
Hens, 4.—1st and 2nd, C. H. Wilson; 3rd, Harry T. Lush.
Cockerels, 3.—1st and 2nd, C. A. R. Tilt; 3rd, C. H. Wilson.
Pullets, 4.—1st, C. A. R. Tilt; 2nd and 3rd, C. H. Wilson.
Best male and best collection, C. A. R. Tilt; *best female,* C. H. Wilson.

BUFF COCHINS.

Cocks, 14.—1st, Holmhurst Poultry Yards; 2nd and 3rd, C. W. Case; 4th, Hugh Wyatt.
Hens, 15.—1st, C. W. Case; 2nd and 4th, Hugh Wyatt; 3rd, E. M. Deverell.
Cockerels, 9.—1st and 3rd, Holmhurst Poultry Yards; 2nd, Hugh Wyatt.
Pullets, 12.—1st and 2nd, Holmhurst Poultry Yards; 2nd, Hugh Wyatt; 4th, C. W. Case.
Best male and best collection, Holmhurst Poultry Yards; *best female,* C. W. Case.

PARTRIDGE COCHINS.

Cocks, 4.—1st, A. E. Shether; 2nd, John Handley; 3rd, C. E. Kingsbury.
Hens, 7.—1st, 2nd and 2rd, A. E. Shether.
Cockerels, 4.—1st and 3rd, F. Wales; 2nd, C. H. Wilson.
Pullets, 5.—1st, A. E. Shether; 2nd and 3rd, C. E. Kingsbury.
Best male, best female and best collection, A. E. Shether.

Black Cochins.

Cocks, 2.—1st and 2nd, C. A. R. Tilt.
Hens, 3.—1st, 2nd and 3rd, C. A. R. Tilt.
Cockerels, 2.—1st and 2nd, C. A. R. Tilt.
Pullets, 3.—1st, 2nd and 3rd, C. A. R. Tilt.
Best male, best female and best collection, C. A. R. Tilt.

White Cochins.

Cocks, 2.—1st, Hugh Wyatt; 2nd, Harry T. Lush.
Hens, 3.—1st, Hugh Wyatt; 2nd, G. & J. Bogue; 3rd, Harry T. Lush.
Best male, best female and best collection, Hugh Wyatt.

Black Langshans.

Cocks, 5.—1st and 2nd, R. McCurdy; 3rd, John H. Wright.
Hens, 8.—1st and 3rd, C. A. R. Tilt; 2nd, R. McCurdy.
Cockerels, 6.—1st, C. A. R. Tilt; 2nd and 3rd, R. McCurdy.
Pullets, 7.—1st, C. A. R. Tilt; 2nd and 3rd, R. McCurdy.
Best male and best collection, R. McCurdy; *best female,* C. A. R. Tilt.

A. O. C. Langshans.

Cocks, 2.—1st, Wm. Pearson; 2nd, W. J. Teale.
Hens, 3.—1st and 2nd, W. Pearson; 3rd, W. J. Teale.
Cockerels, 3.—1st and 2nd, W. J. Teale.
Pullets, 3.—1st, Wm. Pearson; 2nd and 3rd, W. J. Teale.
Best male and best female, Wm. Pearson; *best collection,* W. J. Teale.

Barred Plymouth Rocks.

Cocks, 35.—1st, 6th, 8th and 9th, I. K. Millard; 2nd and 5th, Thos. Andrew; 3rd and 10th, J. Pringle; 4th, Hodge & McLuckie; 7th, J. Marrs.

Hens, 33.—1st and 9th, Jno. Pringle; 2nd, 4th, 8th and 10th, I. K. Millard; 3rd and 5th, Thos. Andrew; 6th and 7th, Hodge & McLuckie.

Cockerels, 46.—1st, 4th and 10th, Chas. Hall & Son; 2nd and 8th, J. Pringle; 3rd and 7th, I. K. Millard; 5th, I. K. Millard; 6th, Jean Rolland; 9th, A. H. Switzer.

Pullets, 40.—1st and 5th, John Pringle; 2nd, Hodge & McLuckie; 3rd, 4th and 10th, I. K. Millard; 6th, 7th and 8th, Thos. Andrews; 9th, Thos. T. Winstanley.

Best male, Hall & Son; *best female,* J. Pringle; *best collection,* I. K. Millard.

White Plymouth Rocks.

Cocks, 17.—1st, Geo. Robertson; 2nd, Fred A. Andrews; 3rd, F. C. Dulmage; 4th, W. E. Pautler.

Hens, 23.—1st, Fred A. Andrews; 2nd and 3rd, J. L. Brown; 4th and 5th, John C. Durst.

Cockerels, 32.—1st, F. C. Dulmage; 2nd and 4th, J. L. Brown; 3rd, George Robertson; 5th, 6th and 8th, Fred A. Andrews; 7th and 9th, Glen Oak Poultry Yards; 3rd and 10th, Geo. Robertson.

Pullets, 24.—1st and 3rd, Fred A. Andrews; 2nd and 5th, J. L. Brown; 4th, George Robertson.

Best male, F. C. Dulmage; *best female and best collection,* F. A. Andrews.

Buff Plymouth Rocks.

Cocks, 6.—1st and 2nd, John Bawden; 3rd, W. H. Beemer.
Hens, 6.—1st and 2nd, John Bawden; 3rd, W. H. Beemer.
Cockerels, 11.—1st, A. C. Bricker and I. Durst; 2nd and 3rd, John Bawden.
Pullets, 10.—1st, 2nd and 3rd, John Bawden.
Best male, best female, and best collection, John Bawden.

PARTRIDGE PLYMOUTH ROCKS.

Cocks, 7.—1st, Gideon Peer; 2nd, F. T. Hall; 3rd, Otto Schierholtz.
Hens, 6.—1st, Otto Schierholtz; 2nd and 3rd, F. T. Hall.
Cockerels, 9.—1st and 3rd, Otto Schierholtz; 2nd, F. T. Hall.
Pullets, 10.—1st, 2nd and 3rd, Otto Schierholtz.
Best male, best female and best collection, Otto Schierholtz.

GOLDEN LACED WYANDOTTES.

Cocks, 6.—1st, Harry T. Lush; 2nd, Flawn & Benbow; 3rd, Becker & Sons.
Hens, 10.—1st, Becker & Sons; 2nd, Flawn & Benbow; 3rd, Russell J. Hughes.
Cockerels, 12.—1st, R. H. Sanders; 2nd, Flawn & Benbow; 3rd, Becker & Sons.
Pullets, 15.—1st, Russell J. Hughes; 2nd and 4th, R. H. Sanders; 3rd, Flawn & Benbow.
Best male, H. T. Lush; *best female,* Becker & Sons; *best collection,* Flawn & Benbow.

SILVER LACED WYANDOTTES.

Cocks, 9.—1st, Flawn & Benbow; 2nd, W. Lemon; 3rd, Geo. A. Peck.
Hens, 13.—1st, 2nd, 3rd and 4th, W. Lemon.
Cockerels, 7.—1st and 2nd, W. Lemon; 3rd, Flawn & Benbow.
Pullets, 16.—1st, W. Lemon; 2nd, Flawn & Benbow; 3rd, Jas. Baptie; 4th, J. R. Johnston.
Best male, Flawn & Benbow; *best female and best collection,* W. Lemon.

BLACK WYANDOTTES.

Hens, 4.—1st, Chas. F. Rice; 2nd and 3rd, A. & T. Readwin.
Cockerels, 3.—1st, Herbert A. Pooley; 2nd, Chas. F. Rice.
Pullets, 5.—1st, Chas. F. Rice; 2nd, Herbert A. Pooley; 3rd, A. & T. Readwin.
Best male, H. A. Pooley; *best female and best collection,* Chas. F. Rice.

BUFF WYANDOTTES.

Cocks, 8.—1st and 2nd, Spry & Mick; 3rd, Durand & Shields.
Hens, 13.—1st and 4th, Durand & Shields; 2nd and 3rd, Spry & Mick.
Cockerels, 7.—1st, Spry & Mick; 2nd and 3rd, Durand and Shields.
Pullets, 5.—1st and 2nd, Spry & Mick; 3rd, Durand & Shields.
Best male, best female and best collection, Spry & Mick.

SILVER PENCILLED WYANDOTTES.

Cocks, 7.—1st, T. A. Palmer; 2nd, J. R. Bailey; 3rd, Geo. Burrows & Wm. Wells.
Hens, 9.—1st and 2nd, Geo. Burrows and Wm. Wells; 3rd, Robt. Patterson.
Cockerels, 7.—1st, Robt. Patterson; 2nd, J. R. Bailey; 3rd, J. B. Pritchett.
Pullets, 7.—1st, Geo. Burrows and Wm. Wells; 2nd, J. R. Johnston; 3rd, Robt. Patterson.
Best male, R. Patterson; *best female and best collection,* G. Burrows and W. Wells.

PARTRIDGE WYANDOTTES.

Cocks, 11.—1st, Adams Bros.; 2nd and 3rd, W. H. Ward.
Hens, 15.—1st and 4th, Adams Bros.; 2nd, W. H. Ward; 3rd, Peter P. Becker.
Cockerels, 15.—1st and 4th, S. Rundle; 2nd, W. H. Ward; 3rd, Adams Bros.
Pullets, 16.—1st and 3rd, Adams Bros.; 2nd, J. R. Johnson; 4th, W. H. Ward.
Best male, best female and best collection, Adams Bros.

COLUMBIAN WYANDOTTES.

Cocks, 5.—1st, Art. Serviss; 2nd, S. J. Schelly; 3rd, C. E. Speiran.
Hens, 9.—1st and 3rd, S. J. Schelly; 2nd, Art. Serviss.
Cockerels, 13.—1st, 2nd, 3rd and 4th, S. J. Schelly.
Pullets, 11.—1st, 2nd and 3rd, S. J. Schelly.
Best male, best female and best collection, S. J. Schelly.

WHITE WYANDOTTES.

Cocks, 39.—1st, 2nd and 3rd, Jos. Russell; 4th, 6th and 9th, W. Dawson; 7th, Chas. Massie; 8th, Wm. Wilson; 5th and 10th, Sid Saunders.

Hens, 57.—1st and 2nd, Jos. Russell; 3rd and 7th, Wm. Wilson; 4th and 6th, Sid Saunders; 5th and 9th, W. Dawson; 8th, R. W. Vout; 10th, C. Herbert Woltz.

Cockerels, 95.—1st, 3rd, 6th, 7th and 9th, Jos. Russell; 2nd, W. Dawson; 4th and 10th, Wm. Archer; 5th, Wm. Howe; 8th, R. W. Vout.

Pullets, 67.—1st and 2nd, W. Dawson; 3rd and 4th, Jos. Russell; 5th and 6th, Sid Saunders; 7th and 8th, C. H. Woltz; 9th, A. E. Archer; 10th, Isaac D. Atkins.

Best male, best female and best collection, Jos. Russell.

DOMINIQUES.

Cocks, 2.—1st G. B. Carbert; 2nd, Luxton, Whetham & Fricker.

Hens, 4.—1st, G. B. Carbert; 2nd, Luxton, Whetham & Fricker; 3rd, C. D. Worthington.

Cockerels, 4.—1st, Luxton, Whetham & Fricker; 2nd, G. B. Carbert.

Pullets, 2.—1st, G. B. Carbert; 2nd, Luxton, Whetham & Fricker.

Best male, Luxton, Whetham & Fricker; *best female and best collection,* G. B. Carbert.

BLACK JAVAS.

Cocks, 4.—1st, J. E. Peart; 2nd, J. H. Warrington; 3rd, C. D. Worthington.

Hens, 5.—1st and 2nd, J. E. Peart; 3rd, F. W. Krouse.

Cockerels, 5.—1st, Luxton, Whetham & Fricker; 2nd, F. W. Krouse; 3rd, J. E. Peart.

Pullets, 3.—1st, Luxton, Whetham & Fricker; 2nd, F. W. Krouse; 3rd, C. D. Worthington.

Best male and best female, J. E. Peart.

MOTTLED JAVAS.

Cocks, 2.—1st, G. & J. Bogue; 2nd, Richard Oke.

Hens, 3.—1st, G. & J. Bogue; 2nd, Richard Oke; 3rd, J. H. Warrington.

Cockerels, 1.—1st, Richard Oke.

Best male, R. Oke; *best female,* G. & J. Bogue;

S. C. RHODE ISLAND REDS.

Cocks, 22.—1st, Hughes & Taylor; 2nd, C. Vogt; 3rd, Jos. Russell; 4th, Chas. Sawden; 5th, Gunn-Langlois & Co.

Hens, 26.—1st, T. A. King; 2nd, John Bradley; 3rd, Hughes & Taylor; 4th, Chas. Sawden; 5th, C. J. Daniel.

Cockerels, 32.—1st and 6th, Jos. Russell; 2nd, 3rd and 4th, T. A. Faulds; 5th, Gunn, Langlois & Co.; 7th and 8th, Chas. Sawden; 9th, Irvine Anderson; 10th, Hughes & Taylor.

Pullets, 34.—1st, 2nd, 3rd and 9th, T. A. Faulds; 4th and 5th, C. Vogt; 6th, Gunn, Langlois & Co.; 7th and 8th, Hughes & Taylor; 10th, Irvine Anderson.

Best male, Jos. Russell; *best female and best collection,* T. A. Faulds.

R. C. RHODE ISLAND REDS.

Cocks, 11.—1st, W. M. McDonald; 2nd, Joseph Russell; 3rd, Geo. F. Corder.

Hens, 14.—1st and 2nd, Joseph Russell; 3rd, C. Vogt; 4th, Hughes & Taylor.

Cockerels, 14.—1st, Chas. Sawden; 2nd and 4th, Hughes & Taylor; 3rd, Jos. Russell.

Pullets, 26.—1st, Hughes & Taylor; 2nd, 3rd, 4th and 5th, Joseph Russell.

Best male, W. M. McDonald; *best female,* Hughes & Taylor; *best collection,* Jos. Russell.

BLACK RED GAMES.

Cocks, 4.—1st, Thos. Parrott; 2nd and 3rd, S. Stapleford.

Hens, 11.—1st, W. J. Elliott; 2nd and 3rd, Thos. Parrott.

Cockerels, 7.—1st and 2nd, W. J. James; 3rd, Jas. Morley.

Pullets, 9.—1st, W. J. James; 2nd, Jas. Morley; 3rd, Thos. Parrott.

Best male and best collection, Thos. Parrott; *best female,* W. J. Elliott.

BROWN RED GAMES.

Cocks, 1.—1st, W. Barber.
Hens, 3.—1st, W. Barber; 2nd, W. J. Elliott; 3rd, Jos. Telfer.
Cockerels, 2.—1st and 2nd, W. Barber.
Pullets, 2.—1st and 2nd, W. Barber.
Best male, best female and best collection, W. Barber.

DUCKWING GAMES.

Cocks, 4.—1st and 2nd, W. Barber; 3rd, Jos. Telfer.
Hens, 4.—1st, W. Barber; 2nd, I. K. Martin; 3rd, Jos. Telfer.
Cockerels, 4.—1st, W. Barber; 2nd and 3rd, A. Charlton.
Pullets, 4.—1st and 2nd, W. Barber; 3rd, A. Charlton.
Best male, best female and best collection, W. Barber.

PYLE GAMES.

Cocks, 5.—1st, 2nd and 3rd, John Parkinson.
Hens, 5.—1st and 2nd, John Parkinson; 3rd, Thos. Parrott.
Cockerels, 3.—1st, 2nd and 3rd, John Parkinson.
Pullets, 6.—1st, 2nd and 3rd, John Parkinson.
Best male, best female and best collection, John Parkinson.

INDIAN GAMES, ANY VARIETY.

Cocks, 11.—1st and 3rd, Nixon Bros.; 2nd, Harry Norton.
Hens, 13.—1st and 3rd, Nixon Bros.; 2nd, John Handley; 4th, Harry Norton.
Cockerels, 7.—1st, Nixon Bros.; 2nd, Harry Norton.
Pullets, 12.—1st and 2nd, Nixon Bros.; 3rd and 4th, Harry Norton.
Best male, best female and best collection, Nixon Bros.

BLACK SUMATRA GAMES.

Cocks, 4.—1st, J. H. Warrington; 2nd, Becker & Sons; 3rd, C. J. Daniels.
Hens, 5.—1st, H. R. K. Tozer; 2nd, J. H. Warrington; 3rd, C. J. Daniels.
Cockerels, 6.—1st, Becker & Sons; 2nd, J. H. Warrington; 3rd, F. D. King.
Pullets, 4.—1st and 3rd, C. J. Daniels; 2nd, H. R. K. Tozer.
Best male, J. H. Warrington; *best female,* H. R. K. Tozer; *best collection,* C. J. Daniels.

BIRCHEN GAMES.

Cocks, 2.—W. Barber; 2nd, Jos. Telfer.
Hens, 3.—1st and 2nd, W. Barber; 3rd, Jos. Telfer.
Pullets, 3.—1st and 2nd, W. Barber; 3rd, Jos. Telfer.
Best Male and Best Female.—W. Barber.

PIT GAMES.

Cocks, 17.—1st, G. B. Carbert; 2nd, Hart & Grimoldby; 3rd and 4th, R. H. Barber.
Hens, 10.—1st, J. V. McAree; 2nd, M. W. Armstrong; 3rd, R. H. Barber.
Cockerels, 14.—1st, McKenzie & Plester; 2nd, Stevenson Bros.; 3rd, Hart & Grimoldby; 4th, Scanlon Bros.
Pullets, 18.—1st and 4th, M. W. Armstrong; 2nd, Stevenson Bros.; 3rd, McKenzie & Plester.
Best male, G. B. Carbert; *best female,* J. V. McAree; *best collection,* M. W. Armstrong.

A. O. S. V. GAMES.

Cocks, 2.—1st, W. J. Elliott; 2nd, Robert Bell.
Hens, 2.—1st, W. J. Elliott; 2nd, Robert Bell.
Cockerels, 1.—1st, W. J. Elliott.
Pullets, 1.—1st, W. J. Elliott.
Best Collection.—W. J. Elliott.

R. C. WHITE LEGHORNS.

Cocks, 19.—1st and 2nd, Thorne Bros.; 3rd, M. R. Hoover.
Hens, 12.—1st, W. J. Bell; 2nd, Thorne Bros.; 3rd and 4th, M. R. Hoover.
Cockerels, 11.—1st and 3rd, M. R. Hoover; 2nd, I. K. Martin.
Pullets, 12.—1st, M. R. Hoover; 2nd and 3rd, I. K. Martin; 4th, W. J. Bell.
Best male, Thorne Bros.; *best female,* W. J. Bell; *best collection,* M. R. Hoover.

S. C. WHITE LEGHORNS.

Cocks, 19.—1st, 2nd and 3rd, Campbell Bros.; 4th, John Halloran.
Hens, 24.—1st, 2nd and 4th, Campbell Bros.; 3rd and 5th, John C. Durst.
Cockerels, 49.—1st, 4th, 5th and 6th, Campbell Bros.; 2nd and 8th, Wm. Ferguson; 3rd, King & Johnston; 7th, Peter Bertram; 9th, C. H. Greensides; 10th, John Halloran.
Pullets, 45.—1st, 7th, and 8th, Campbell Brothers; 2nd, John C. Durst; 3rd and 4th, Wm. Ferguson; 5th, Jas. L. McCormack; 6th, John Halloran; 9th, A. S. Taber; 10th, D. Douglas & Sons.
Best male, best female, and best collection, Campbell Bros.

BLACK LEGHORNS.

Cocks, 10.—1st and 2nd, James Meldrum; 3rd, A. H. Switzer.
Hens, 13.—1st, James Meldrum; 2nd and 4th, F. H. Gallinger; 3rd, W. Barber.
Cockerels, 15.—1st and 4th, A. H. Switzer; 2nd, James Meldrum; 3rd, F. H. Gallinger.
Pullets, 14.—1st, 2nd and 4th, F. H. Gallinger; 3rd, W. J. McLeod.
Best male, Jas. Meldrum; *best female and best collection,* F. H. Gallinger.

R. C. BROWN LEGHORNS.

Cocks, 6.—1st, Wm. Cadman; 2nd, C. H. Wilson; 3rd, R. H. Pond.
Hens, 7.—1st and 2nd, Wm. Cadman; 3rd, R. H. Pond.
Cockerels, 14.—1st, Thos. Edgar; 2nd, Wm. Cadman; 3rd and 4th, C. H. Wilson.
Pullets, 11.—1st and 2nd, Wm. Cadman; 3rd, C. H. Wilson.
Best male, best female and best collection, W. Cadman.

S. C. BROWN LEGHORNS.

Cocks, 11.—1st, Peter Scott; 2nd, A. J. Engel; 3rd, H. F. Becker.
Hens, 22.—1st, 2nd and 5th, Rev. J. G. Taylor; 4th, Orr & Creedon; 3rd, H. F. Becker.
Cockerels, 37.—1st, 2nd and 3rd, Orr & Creeden; 4th, C. Day; 5th, Peter Scott; 6th, A. J. Engel; 7th, 8th and 9th, H. F. Becker; 10th, Rev. J. G. Taylor.
Pullets, 25.—1st, 3rd, 4th and 5th, Orr & Creeden; 2nd, Rev. J. G. Taylor.
Best male, best female and best collection, Orr & Creeden.

BUFF LEGHORNS.

Cocks, 6.—1st and 3rd, R. B. Graham; 2nd, C. Blyth.
Hens, 6.—1st, R. B. Graham; 2nd, R. Billings; 3rd, C. Blyth.
Cockerels, 8.—1st and 2nd, R. B. Graham; 3rd, R. Billings.
Pullets, 10.—1st and 3rd, R. Billings; 2nd, R. B. Graham.
Best male and best collection, R. B. Graham; *best female,* R. Billings.

SILVER DUCKWING LEGHORNS.

Cocks, 1.—2nd, A. H. Switzer.
Hens, 2.—2nd, A. H. Switzer.
Cockerels, 3.—1st and 2nd, A. H. Switzer.
Pullets, 3.—1st and 2nd A. H. Switzer.
Best male, best female and best collection, A. H. Switzer.

SPANISH.

Cocks, 4.—1st, Chas. F. Rice; 2nd, F. D. King; 3rd, David Bogue.
Hens, 3.—1st, Chas. F. Rice; 2nd, J. B. Sutherland; 3rd, J. H. Warrington.
Cockerels, 5.—1st, G. & J. Bogue; 2nd, and 3rd, Chas. F. Rice.
Pullets, 4.—1st, G. & J. Bogue; 2nd and 3rd, Chas. F. Rice.
Best male, best female and best collection, Chas. F. Rice.

S. C. Black Minorcas.

Cocks, 11.—1st, H. Dunning; 2nd, R. J. Teskey; 3rd, Henry Dunne.

Hens, 26.—1st and 4th, Henry Dunne; 2nd and 5th, R. J. Teskey; 3rd, Schafer & Goebel.

Cockerels, 31.—1st and 4th, R. J. Teskey; 2nd and 5th, Schafer & Goebel; 3rd, J. H. Willoughby; 6th, 7th and 9th, Chas. Gould; 8th, Geo. C. Cook; 10th, Geo. C. Cook.

Pullets, 27.—1st, 2nd and 4th, Geo. C. Cook; 3rd, R. J. Teskey; 5th, Schafer & Goebel.

Best male and best collection, R. J. Teskey; *best female*, Henry Dunne.

R. C. Black Minorcas.

Cocks, 6.—1st, Ross Swartout; 2nd and 3rd, B. J. Mountjoy.

Hens, 6.—1st and 3rd, B. J. Mountjoy; 2nd, Ross Swartout.

Cockerels, 10.—1st and 2nd, Ross Swartout; 3rd, B. J. Mountjoy.

Pullets, 8.—1st, 2nd, and 3rd, B. J. Mountjoy.

Best male, Ross Swartout; *best female and best collection*, B. J. Mountjoy.

White Minorcas.

Cocks.—1st, E. A. Bock; 2nd, Alex. Moyer.

Hens.—1st and 2nd, E. A. Bock; 3rd, J. C. Read.

Cockerels, 6.—1st and 3rd, E. A. Bock; 2nd, Thos. Vickers.

Pullets, 6.—1st and 2nd, E. A. Bock; 3rd, Thos. Vickers.

Best male, best female and best collection, E. A. Bock.

Andalusians.

Cocks, 8.—1st, King & Johnston; 2nd, C. D. Worthington; 3rd, E. S. Baker.

Hens, 11.—1st, King & Johnston; 2nd, A. H. Switzer; 3rd, C. D. Worthington.

Cockerels, 8.—1st, A. H. Switzer; 2nd, C. D. Worthington; 3rd, King & Johnston.

Pullets, 8.—1st, 2nd and 3rd, A. H. Switzer.

Best male and best collection, A. H. Switzer; *best female*, King & Johnston.

Anconas.

Cocks, 10.—1st, T. H. Scott; 2nd, A. C. McCulloch; 3rd, I. S. Underwood.

Hens, 15.—1st, T. H. Scott; 2nd and 3rd, J. McDonnell; 4th, A. C. McCulloch.

Cockerels, 32.—1st, 2nd, 3rd, 4th, 5th and 6th, T. H. Scott; 7th, 9th and 10th, A. C. McCulloch; 8th, Wm. Phenix.

Pullets, 38.—1st and 2nd, Peter P. Becker; 3rd, 4th, and 10th, T. H. Scott; 5th, A. C. McCulloch; 6th, W. T. Gies; 7th and 8th, I. S. Underwood; 9th, Archie Baird.

Best male and best collection, T. H. Scott; *best female*, Peter P. Becker.

Silver Grey Dorkings.

Cocks, 8.—1st, G. A. Burns; 2nd, H. H. McKee; 3rd, E. E. McCombs.

Hens, 11.—1st and 2nd, W. W. McGlennon; 3rd, G. A. Burns.

Cockerels, 13.—1st and 4th, G. A. Burns; 2nd H. H. McKee; 3rd, W. W. McGlennon.

Pullets, 14.—1st, F. W. Krouse; 2nd and 3rd, G. A. Burns; 4th, W. W. McGlennon.

Best male and best collection, G. A. Burns; *best female*, W. W. McGlennon.

Colored Dorkings.

Cocks, 5.—1st, David Bogue; 2nd, J. H. Warrington; 3rd, G. & J. Bogue.

Hens, 6.—1st and 2nd, Jas. McCormack; 3rd, G. & J. Bogue.

Cockerels, 5.—1st and 2nd, Jas. M. McCormack; 3rd, A. S. Taber.

Pullets, 7.—1st, G. & J. Bogue; 2nd, Jas M. McCormack; 3rd, A. S. Taber.

Best male and best collection, J. M. McCormack; *best female*, D. Bogue.

White Dorkings.

Cocks, 3.—1st, D. Bogue; 2nd, F. D. King; 3rd, J. H. Warrington.

Hens, 2.—1st, D. Bogue; 2nd, J. H. Warrington.

Cockerels, 2.—1st, D. Bogue; 2nd, J. H. Warrington.

Pullets, 2.—1st, D. Bogue; 2nd, J. H. Warrington.

Best male, best female and best collection, D. Bogue.

BUFF ORPINGTONS.

Cocks, 15.—1st, H. A. Hoffman; 2nd and 3rd, E. C. McDougall; 4th, Thompson, Brothers.

Hens, 9.—1st, Thompson Bros.; 2nd and 3rd, E. C. McDougall.

Cockerels, 31.—1st, Mrs. E. D. Graham; 2nd, 3rd, 4th and 5th, H. A. Hoffman; 6th, Francis Floyd; 7th, 8th, 9th and 10th, E. C. McDougall.

Pullets, 27.—1st and 3rd, E. C. McDougall; 2nd, F. H. Ferguson; 4th, Francis Floyd.

Best male, Mrs. E. D. Graham; *best female,* Thompson Bros.; *best collection,* E. C. McDougall.

BLACK ORPINGTONS.

Cocks, 20.—1st, E. Fraleigh; 2nd, T. E. McLellan; 3rd, Kemp & Waterman; 4th, T. E. McLellan.

Hens, 20.—1st, L. E. Crawford; 2nd, E. Fraleigh; 3rd, G. A. Jameson; 4th, T. E. McLellan.

Cockerels, 22.—1st, A. H. Westman; 2nd and 5th, Hamilton & Scoyne; 3rd, Kemp & Waterman; 4th, E. Fraleigh.

Pullets, 21.—1st, Hamilton & Scoyne; 2nd and 4th, Kemp & Waterman; 3rd, A. H. Westman; 5th, H. F. Vidal.

Best male, A. H. Westman; *best female,* L. E. Crawford; *best collection,* E. Fraleigh.

WHITE ORPINGTONS.

Cocks, 13.—1st, Prince Bros.; 2nd, A. C. Bricker and I. Durst; 3rd, Wm. Wilson.

Hens, 19.—1st and 4th, J. E. Cohoe; 2nd and 3rd, H. J. Petrie.

Cockerels, 30.—1st and 3rd, J. E. Cohoe; 2nd, Robert Christie; 4th, A. H. Westman; 5th, W. C. Young; 6th and 7th, W. L. Hillard; 8th, H. J. Petrie; 9th and 10th, P. Dill.

Pullets, 37.—1st and 3rd, J. E. Cohoe; 2nd, H. J. Petrie; 4th, R. L. Wheadon; 5th, J. E. Cohoe; 6th, P. Dill; 7th and 10th, Wm. Wilson; 8th, A. H. Westman; 9th, Robert Christie.

Best male, best female and best collection, J. E. Cohoe.

HOUDANS.

Cocks, 13.—1st, Wm. Phenix; 2nd, Pickering & Carroll; 3rd, C. Day; 4th, E. C. McDougall.

Hens, 19.—1st, G. & J. Bogue; 2nd, Wm. Cadman; 3rd, Wm. Phenix; 4th, C. H. Wilson.

Cockerels, 12.—1st and 5th, E. C. McDougall; 2nd and 4th, Pickering & Carroll; 3rd, F. Wales.

Pullets, 20.—1st, Wm. Phenix; 2nd, Pickering & Carroll; 3rd and 4th, E. C. McDougall.

Best male and best collection, Wm. Phenix; *best female,* G. & J. Bogue.

CREVE COEURS.

Cocks, 2.—1st, G. & J. Bogue.

Hens, 3.—1st, G. & J. Bogue; 2nd, J. H. Warrington.

Cockerels, 3.—1st and 2nd, G. & J. Bogue.

Pullets, 3.—1st and 2nd, G. & J. Bogue.

Best male, best female and best collection, G. & J. Bogue.

LAFLECHE.

Cocks, 3.—1st and 3rd, G. & J. Bogue; 2nd, W. M. Smith.

Hens, 3.—1st and 3rd, G. & J. Bogue; 2nd, W. M. Smith.

Cockerels, 5.—1st, W. M. Smith.

Pullets, 5.—W. M. Smith.

Best male and best female, G. & J. Bogue; *best collection,* W. M. Smith.

W. C. B. POLANDS.

Cocks, 2.—1st and 2nd, Wm. McNeil.

Hens, 2.—1st and 2nd, Wm. McNeil.

Cockerels, 5.—1st and 2nd, Wm. McNeil; 3rd, J. B. Sutherland.

Pullets, 5.—1st, J. B. Sutherland; 2nd and 3rd, Wm. McNeil.

Best male, best female and best collection, Wm. McNeil.

GOLDEN POLANDS.

Cocks, 4.—1st and 2nd, G. & J. Bogue; 3rd, Wm. McNeil.
Hens, 4.—1st, G. & J. Bogue; 2nd and 3rd, Wm. McNeil.
Cockerels, 2.—1st, G. & J. Bogue; 2nd, Wm. McNeil.
Pullets, 3.—1st and 3rd, G. & J. Bogue; 2nd, Wm. McNeil.
Best male, best female, and best collection, G. & J. Bogue.

SILVER POLANDS.

Cocks, 4.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Hens, 4.—1st, G. & J. Bogue; 2nd, J. B. Sutherland; 3rd, Wm. McNeil.
Cockerels, 3.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.
Pullets, 4.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.
Best male and best collection, Wm. McNeil; *best female*, G. & J. Bogue

WHITE POLANDS.

Cocks, 3.—1st, 2nd and 3rd, Wm. McNeil.
Hens, 3.—1st, 2nd and 3rd, Wm. McNeil.
Cockerels, 3.—1st, G. & J. Bogue; 2nd and 3rd, Wm. McNeil.
Pullets, 3.—1st, G. & J. Bogue; 2nd and 3rd, Wm. McNeil.
Best male, best female and best collection, Wm. McNeil

GOLDEN BEARDED POLANDS.

Cocks, 7.—1st and 2nd, Wm. McNeil; 3rd, G.& J. Bogue.
Hens, 8.—1st and 2nd, G. & J. Bogue; 3rd, Wm. McNeil.
Cockerels, 3.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Pullets, 3.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.
Best male and best collection, Wm. McNeil; *best female*, G. & J. Bogue.

SILVER BEARDED POLANDS.

Cocks, 3.—1st, G. & J. Bogue; 2nd, Hugh A. Rose; 3rd, J. B. Sutherland.
Hens, 3.—1st, G. & J. Bogue; 2nd and 3rd, Hugh A. Rose.
Cockerels, 5.—1st, G. & J. Bogue; 2nd, Alton Stevens; 3rd, Hugh A. Rose.
Pullets, 4.—1st and 2nd, G. & J. Bogue; 3rd, Hugh A Rose.
Best male, best female and best collection, G. & J. Bogue.

WHITE BEARDED POLANDS.

Cocks, 3.—1st, J. B. Sutherland; 2nd and 3rd, Wm. McNeil.
Hens, 2.—1st and 2nd, Wm. McNeil.
Cockerels, 1.—1st, Wm. McNeil.
Pullets, 4.—1st and 2nd, Wm. McNeil; 3rd, J. B. Sutherland.
Best male, J. B. Sutherland; *best female and best collection*, Wm. McNeil.

BUFF-LACED BEARDED POLANDS.

Cocks, 1.—1st, G. & J. Bogue.
Hens, 1.—1st, G. & J. Bogue.
Cockerels, 2.—1st and 2nd, G. & J. Bogue.
Pullets, 2.—1st and 2nd, G. & J. Bogue.
Best male, best female and best collection, G. & J. Bogue.

GOLDEN SPANGLED HAMBURGS.

Cocks, 4.—1st, Richard Oke; 2nd, Jas. Baptie; 3rd, Harry T. Lush.
Hens, 5.—1st and 2nd, Harry T. Lush; 3rd, Jas. Baptie.
Cockerels, 5.—1st, K. & J. Bogue; 2nd, Harry T. Lush; 3rd, Jas Baptie.
Pullets, 5.—1st, Jas. Baptie; 2nd, Richard Oke; 3rd, G. & J. Bogue.
Best male, G. & J. Bogue; *best female and best collection*, Harry T. Lush.

SILVER SPANGLED HAMBURGS.

Cocks, 5.—1st, Richard Oke; 2nd and 3rd, Harry T. Lush.

Hens, 13.—1st, Harry T. Lush; 2nd, G. & J. Bogue; 3rd, Richard Oke; 4th, James Baptie.

Cockerels, 11.—1st, Richard Oke; 2nd and 3rd, James Baptie; 4th, Furneaux Bros.
Pullets, 13.—1st, Wm. Carter; 2nd, 3rd and 4th, James Baptie.
Best male, Richard Oke; *best female,* H. T. Lush; *best collection,* J. Baptie.

GOLDEN PENCILLED HAMBURGS.

Cocks, 2.—1st, Richard Oke; 2nd, G. & J. Bogue.
Hens, 3.—1st, Richard Oke; 2nd, G. & J. Bogue; 3rd, Wm. Carter.
Cockerels. 3.—1st, G. & J. Bogue; 2nd, Richard Oke; 3rd, Wm. Carter.
Pullets, 5.—1st, Richard Oke; 2nd, G. & J. Bogue; 3rd, Wm. Carter.
Best male, best female and best collection.—Richard Oke.

SILVER PENCILLED HAMBURGS.

Cocks, 2.—1st, G. & J. Bogue; 2nd, Richard Oke.
Hens, 3.—1st, G. & J. Bogue; 2nd, Richard Oke; 3rd, Wm. Carter.
Cockerels, 2.—1st, G. & J. Bogue; 2nd, Richard Oke.
Pullets, 3.—1st, Wm. Carter; 2nd, Richard Oke; 3rd, G. & J. Bogue.
Best male, best female and best collection.—G. & J. Bogue.

BLACK HAMBURGS.

Cocks, 8.—1st, Harry Curliss; 2nd, R. L. Wheadon; 3rd, Richard Oke.

Hens, 12.—1st, R. L. Wheadon; 2nd, Richard Oke; 3rd, Harry Curliss; 4th, F. D. King.

Cockerels, 19.—1st, R. L. Wheadon; 2nd, W. G. Murray; 3rd, Richard Oke; 4th, F. D. King.

Pullets, 17.—1st, F. D. King; 2nd, W. G. Murray; 3rd and 4th, R. L. Wheadon.
Best male, best female and best collection.—R. L. Wheadon.

RED CAPS.

Cocks, 5.—1st, C. Schelter; 2nd, G. W. Kinder; 3rd, D. Lippert.
Hens, 4.—1st and 2nd, G. W. Kinder; 3rd, D. Lippert.
Cockerels. 6.—1st and 3rd, D. Lippert; 2nd, G. W. Kinder.
Pullets. 6.—1st and 2nd, G. W. Kinder; 3rd, D. Lippert.
Best male, C. Schelter; *best female and best collection,* Geo. W. Kinder.

SULTANS.

Cocks. 2.—1st, J. H. Warrington; 2nd, W. G. Murray.
Hens. 3.—1st, J. H. Warrington; 2nd, W. G. Murray; 3rd, Hugh A. Rose.
Cockerels, 2.—1st, W. G. Murray; 2nd, Hugh A. Rose.
Pullets, 1.—1st, W. G. Murray.
Best male and best female. J. H. Warrington; *best collection,* W. G. Murray.

SILKIES.

Cocks, 2.—1st and 2nd, J. Saunders.
Hens, 2.—1st and 2nd, J. Saunders.
Cockerels, 2.—1st and 2nd, J. Saunders.
Pullets, 2.—1st and 2nd, J. Saunders.
Best male, best female and best collection. J. Saunders.

A. O. V. FOWLS.

Cocks. 4.—1st, J. Lang; 2nd, C. J. Daniels; 3rd, Grier Bros.
Hens, 9.—1st, J. Lang; 2nd, Grier Bros.; 3rd, Archie Baird.
Cockerels. 8.—1st, J. E. Cohoe; 2nd and 3rd, C. J. Daniels.
Pullets, 9.—1st, J. E. Cohoe; 2nd, C. J. Daniels; 3rd, W. W. Shaw.
Best male, Jacob Lang; *best female,* J. E. Cohoe; *best collection,* Jacob Lang.

BLACK RED GAME BANTAMS.

Cocks, 4.—1st, W. R. Walker; 2nd, W. R. Walker; 3rd, A. J. Grigg.
Hens, 15.—1st, 3rd and 4th, W. R. Walker; 2nd, C. R. Crowe.
Cockerels, 13.—1st, C. R. Crowe; 2nd and 3rd, W. R. Walker; 4th, W. Barber.
Pullets, 17.—1st and 3rd, W. R. Walker; 2nd, W. Barber; 4th, C. R. Crowe.
Best male, best female and best collection. W. R. Walker.

BROWN RED GAME BANTAMS.

Cocks, 7.—1st, A. H. Trebilcock; 2nd, Rook Bros.; 3rd, A. W. Tyson.
Hens, 7.—1st, A. W. Tyson; 2nd, Hart & Grimoldby; 3rd, Rook Bros.
Cockerels, 6.—1st, A. H. Trebilcock; 2nd, Wolfe & Marshall; 3rd, A. W. Tyson.
Pullets, 8.—1st, Wolfe & Marshall; 2nd, Rook Bros.; 3rd, A. H. Trebilcock.
Best male and best collection, A. H. Trebilcock; *best female,* A. W. Tyson.

G. DUCKWING GAME BANTAMS.

Cocks, 6.—1st, W. Barber; 2nd, Wolfe & Marshall; 3rd, A. J. Grigg.
Hens, 5.—1st, Rook Bros.; 2nd, A. J. Grigg; 3rd, W. Barber.
Cockerels, 7.—1st and 3rd, Wolfe & Marshall; 2nd, W. Barber.
Pullets, 6.—1st, Spiars Bros.; 2nd and 3rd, W. Barber.
Best male and collection, W. Barber; *best female,* Rook Bros.

S. DUCKWING GAME BANTAMS.

Cocks, 4.—1st and 3rd, W. Howard; 2nd, A. J. Grigg.
Hens, 6.—1st, W. Barber; 2nd, A. J. Grigg; 3rd, W. Howard.
Cockerels, 7.—1st and 2nd, W. Howard; 3rd, W. Barber.
Pullets, 6.—1st, 2nd and 3rd, W. Howard.
Best male and best collection, W. Howard; *best female,* W. Barber.

PYLE GAME BANTAMS.

Cocks, 12.—1st, A. J. Grigg; 2nd, W. J. Teale; 3rd and 4th, Thos. Bower.
Hens, 8.—1st and 2nd, Thos. Bower; 3rd, A. W. Tyson.
Cockerels, 13.—1st, 2nd and 3rd, Thos. Bower; 4th, A. W. Tyson.
Pullets, 15.—1st, A. W. Tyson; 2nd and 3rd, Thos. Bower; 4th, Thos. Parrott.
Best male, A. J. Grigg; *best female and best collection,* Thos. Bower.

WHITE GAME BANTAMS.

Cocks, 5.—1st and 2nd, H. B. Donovan; 3rd, Wm. Pearson.
Hens, 5.—1st, 2nd and 3rd, H. B. Donovan.
Cockerels, 1.—1st, H. B. Donovan.
Pullets, 2.—1st, Wm. Pearson; 2nd, H. B. Donovan.
Best male, best female and best collection, H. B. Donovan.

BIRCHEN GAME BANTAMS.

Cocks, 3.—1st and 2nd, Rook Bros.; 3rd, Wm. Pearson.
Hens, 3.—1st and 2nd, Rook Bros.; 3rd, Wm. Pearson.
Cockerels, 6.—1st and 3rd, Rook Bros.; 2nd, A. H. Trebilcock.
Pullets, 7.—1st, A. H. Trebilcock; 2nd, Rook Bros.; 3rd, Wm. Pearson.
Best male and best collection, Rook Bros.; *best female,* A. H. Trebilcock.

INDIAN GAME BANTAMS.

Cocks, 3.—1st and 3rd, C. Finchamp; 2nd, H. B. Donovan.
Hens, 4.—1st, Hugh A. Rose; 2nd and 3rd, C. Finchamp.
Cockerels, 1.—1st, Hugh A. Rose.
Pullets, 1.—1st, Hugh A. Rose.
Best male, best female and best collection, Hugh A. Rose.

A. O. V. GAME BANTAMS.

Cocks, 2.—1st and 2nd, H. B. Donovan.
Hens, 3.—1st and 3rd, H. B. Donovan; 2nd, C. R. Crowe.
Pullets, 2.—1st, Thos. Bower; 2nd, H. B. Donovan.
Best male, best female and best collection, H. B. Donovan.

GOLDEN SEBRIGHT BANTAMS.

Cocks, 7.—1st and 3rd, Hugh A. Rose; 2nd, W. G. Murray.
Hens, 9.—1st, 2nd and 3rd, Hugh A. Rose.
Cockerels, 8.—1st, Hugh A. Rose; 2nd, W. G. Murray; 3rd, C. A. R. Tilt.
Pullets, 6.—1st, 2nd and 3rd, Hugh A. Rose.
Best male, best female and best collection, Hugh A. Rose.

SILVER SEBRIGHT BANTAMS.

Cocks, 6.—1st and 2nd, Hugh A. Rose; 3rd, Wm. Stuart.
Hens, 7.—1st, 2nd, and 3rd, Hugh A. Rose.
Cockerels, 5.—1st and 3rd, Hugh A. Rose; 2nd, Wm. Pearson.
Pullets, 5.—1st and 3rd, Hugh A. Rose; 2nd, Wm. Pearson.
Best male, best female and best collection.—Hugh A. Rose.

BLACK ROSE COMB BANTAMS.

Cocks, 7.—1st, I. D. Atkin; 2nd, W. G. Murray; 3rd, Richard Oke.
Hens, 10.—1st and 2nd, Hugh A. Rose; 3rd, W. G. Murray.
Cockerels, 9.—1st, Richard Oke; 2nd, Hugh A. Rose; 3rd, I. D. Atkin.
Pullets, 9.—1st and 2nd, Hugh A. Rose; 3rd, Richard Oke.
Best male.—R. Oke; *best female and best collection*—Hugh A. Rose.

WHITE ROSE COMB BANTAMS.

Cocks, 7.—1st, W. G. Murray; 2nd, Richard Oke; 3rd, J. T. Isbell.
Hens, 9.—1st, J. T. Isbell; 2nd, Hugh A. Rose; 3rd, W. G. Murray.
Cockerels, 7.—1st and 2nd, Richard Oke; 3rd, J. T. Isbell.
Pullets, 8.—1st and 3rd, W. G. Murray; 2nd, Richard Oke.
Best male.—Richard Oke; *best female*—W. G. Murray.

WHITE JAPANESE BANTAMS.

Cocks, 3.—1st, Richard Oke; 2nd, W. G. Murray; 3rd, L. Austin Brill.
Hens, 4.—1st, Richard Oke; 2nd, Hugh A. Rose; 3rd, W. G. Murray.
Cockerels, 2.—1st, W. G. Murray; 2nd, Hugh A. Rose.
Pullets, 2.—1st, W. G. Murray.
Best male and best female.—R. Oke; *best collection*—W. G. Murray.

WHITE COCHIN BANTAMS.

Cocks, 6.—1st and 2nd, Rosser Bros.; 3rd, Hugh A. Rose.
Hens, 7.—1st and 2nd, Rosser Bros.; 3rd, Hugh A. Rose.
Cockerels, 10.—1st and 3rd, E. & O. Boug; 2nd, Hugh A. Rose.
Pullets, 11.—1st and 2nd, E. & O. Boug; 3rd, Hugh A. Rose.
Best male and best collection.—Rosser Bros.; *best female*—E. & O. Boug.

BUFF COCHIN BANTAMS.

Cocks, 9.—1st, Hugh A. Rose; 2nd and 3rd, Stevenson Bros.
Hens, 11.—1st, Stevenson Bros.; 2nd and 3rd, Rosser Bros.
Cockerels, 17.—1st, Hugh A. Rose; 2nd and 3rd, F. J. Pickard; 4th, Rosser Bros.
Pullets, 18.—1st and 2nd, Hugh A. Rose; 3rd, Stevenson Bros.; 4th, F. J. Pickard.
Best male and best collection.—Hugh A. Rose; *best female*—Stevenson Bros.

BLACK COCHIN BANTAMS.

Cocks, 14.—1st, Dr. C. R. Cumming; 2nd, 3rd and 4th, Dr. J. N. McRae.
Hens, 18.—1st, J. A. Northey; 2nd, 3rd and 4th, Dr. J. N. McRae.
Cockerels, 14.—1st and 4th, Dr. J. N. McRae; 2nd, J. A. Northey; 3rd, Jas. W. Blain.
Pullets, 16.—1st, J. A. Northey; 2nd, Dr. J. N. McRae; 3rd, E. & O. Boug; 4th, C. A. R. Tilt.
Best male and best collection.—Dr. J. N. McRae; *best female*—J. A. Northey.

PARTRIDGE COCHIN BANTAMS.

Cocks, 10.—1st, J. D. Prideaux; 2nd, Hugh A. Rose; 3rd, Rosser Bros.
Hens, 9.—1st, John D. Prideaux; 2nd, Rosser Bros.; 3rd, H. R. K. Tozer.
Cockerels, 8.—1st, Rosser Bros.; 2nd, Dr. J. N. McRae; 3rd, H. R. K. Tozer.
Pullets, 11.—1st and 2nd, Rosser Bros.; 3rd, E. M. Deverell.
Best male and best female.—J. D. Prideaux; *best collection*—Rosser Bros.

PLAIN W. BOOTED BANTAMS.

Cocks, 5.—1st and 2nd, W. G. Murray; 3rd, T. J. Kiley.
Hens, 5.—1st and 3rd, W. G. Murray; 2nd, R. Oke.
Cockerels, 4.—1st, T. J. Kiley; 2nd and 3rd, W. G. Murray.
Pullets, 4.—1st, W. G. Murray; 2nd and 3rd, T. J. Kiley.
Best male, best female and best collection.—W. G. Murray.

W. BOOTED BEARDED BANTAMS.

Cocks, 4.—1st, 2nd and 3rd, T. J. Kiley.
Hens, 3.—1st, 2nd and 3rd, T. J. Kiley.
Cockerels, 1.—1st, T. J. Kiley.
Pullets, 3.—1st, 2nd and 3rd, T. J. Kiley.
Best male, best female and best collection.—T. J. Kiley.

BLACK-TAILED JAPANESE BANTAMS.

Cocks, 5.—1st and 2nd, W. G. Murray; 3rd, J. T. Isbell.
Hens, 5.—1st and 2nd, W. G. Murray; 3rd, R. Oke.
Cockerels, 4.—1st and 2nd, W. G. Murray; 3rd, J. T. Isbell.
Pullets, 5.—1st, J. T. Isbell; 2nd, R. Oke; 3rd, W. G. Murray.
Best male, best female and best collection.—W. G. Murray.

WHITE JAPANESE BANTAMS.

Cocks, 3.—1st, Richard Oke; 2nd, W. G. Murray; 3rd, L. Austin Brill.
Hens, 4.—1st, Richard Oke; 2nd, Hugh A. Rose; 3rd, W. G. Murray.
Cockerels, 2.—1st, W. G. Murray; 2nd, Hugh A. Rose.
Pullets, 2.—1st, W. G. Murray.
Best male and best female.—Richard Oke; *best collection,* W. G. Murray.

BLACK JAPANESE BANTAMS.

Cocks, 3.—1st, W. G. Murray; 2nd, L. A. Brill; 3rd, R. Oke.
Hens, 5.—1st and 2nd, W. G. Murray; 3rd, L. A. Brill.
Cockerels, 3.—1st and 2nd, W. G. Murray.
Pullets, 3.—1st and 2nd, W. G. Murray; 3rd, Hugh A. Rose.
Best male, best female and best collection.—W. G. Murray.

GREY JAPANESE BANTAMS.

Cocks, 3.—1st and 2nd, W. G. Murray; 3rd, L. A. Brill.
Hens, 4.—1st and 2nd, W. G. Murray; 3rd, L. A. Brill.
Cockerels, 1.—1st, W. G. Murray.
Pullets, 1.—1st, W. G. Murray.
Best male, best female and best collection.—W. G. Murray.

A. O. V. JAPANESE BANTAMS.

Cocks, 2.—1st, J. T. Isbell; 2nd, W. G. Murray.
Hens, 1.—1st, J. T. Isbell.
Best male, best female and best collection.—J. T. Isbell.

WHITE POLISH BEARDED BANTAMS.

Cocks, 3.—1st and 2nd, Hugh A. Rose; 3rd, W. G. Murray.
Hens, 3.—1st and 2nd Hugh A. Rose; 3rd, W. G. Murray.
Cockerels, 6.—1st, Hugh A. Rose; 2nd and 3rd, Wm. McNeil.
Pullets, 5.—1st, W. G. Murray; 2nd and 3rd, Hugh A. Rose.
Best male, best female, and best collection.—Hugh A. Rose.

WHITE POLISH UN-BEARDED BANTAMS.

Cocks, 2.—1st and 2nd, H. B. Donovan.
Hens, 2.—1st and 2nd, H. B. Donovan.
Cockerels, 3.—1st and 2nd, W. G. Murray; 3rd, H. B. Donovan.
Pullets, 3.—1st and 2nd, W. G. Murray; 3rd, H. B. Donovan.
Best male, best female and best collection.—H. B. Donovan.

LIGHT BRAHMA BANTAMS.

Cocks, 9.—1st, 2nd and 3rd, Hugh A. Rose.
Hens, 9.—1st, 2nd and 3rd, Hugh A. Rose.
Cockerels, 5.—1st, 2nd and 3rd, Hugh A. Rose.
Pullets, 5.—1st, 2nd and 3rd, Hugh A. Rose.
Best male, best female and best collection.—Hugh A. Rose.

DARK BRAHMA BANTAMS.

Cocks, 2.—1st, Hugh A. Rose; 2nd, H. B. Donovan.
Hens, 4.—1st, 2nd, and 3rd, Hugh A. Rose.
Cockerels, 3.—1st, 2nd and 3rd, Hugh A. Rose.
Pullets, 3.—1st, 2nd and 3rd, Hugh A. Rose.
Best male, best female and best collection.—Hugh A. Rose.

A. O. V. BANTAMS.

Cocks, 4.—1st, Hugh A. Rose; 2nd, H. B. Donovan; 3rd, Geo. Howard.
Hens, 7.—1st, Hugh A. Rose; 2nd, H. B. Donovan; 3rd, W. G. Murray.
Cockerels, 5.—1st, Hugh A. Rose; 2nd and 3rd, Geo. Howard.
Pullets, 6.—1st, W. G. Murray; 2nd, Hugh A. Rose; 3rd, Geo. Howard.
Best male, best female and best collection.—Hugh A. Rose.

BRONZE TURKEYS, TWO YEARS AND UP.

Male, 4.—1st, W. J. Bell; 2nd, A. Crane; 3rd, C. Gould.

Female, 5.—1st, W. J. Bell; 2nd, W. H. Beattie; 3rd, A. Crane; 4th. A. McDougall & Son.

Best male and best female.—W. J. Bell.

BRONZE TURKEYS, UNDER TWO YEARS.

Male, old, 5.—1st, W. J. Bell; 2nd, C. Gould; 3rd, A. McDougall & Son; 4th, Jos. Telfer.

Female, old, 6.—1st, W. H. Beattie; 2nd, A. McDougall & Son; 3rd, Alton Stevens; 4th, W. J. Bell.

Male, young, 13.—1st and 5th, C. Gould; 2nd and 3rd, W. J. Bell; 4th, W. H. Beattie.

Female, young, 11.—1st, C. Gould; 2nd, W. J. Bell; 3rd and 5th, A. McDougall & Son; 4th, W. H. Beattie.

Best male.—W. J. Bell.

WHITE TURKEYS.

Male, old, 5.—1st, E. S. Baker; 2nd, P. Berdux; 3rd, George Baker; 4th, Joseph Telfer; 5th, W. H. Beattie.

Female, old, 7.—1st and 2nd, E. S. Baker; 3rd and 5th, Jos. Telfer; 4th, P. Berdux.

Male, young, 8.—1st, A. McDougall & Son; 2nd and 3rd, E. S. Baker; 4th and 5th, Jas. M. McCormack.

Female, young, 7.—1st, Jos. Telfer; 2nd, A. McDougall & Son; 3rd, E. S. Baker; 4th, W. H. Beattie; 5th, Philip Berdux.

Best male and best female.—E. S. Baker.

A. O. V. TURKEYS.

Male, old, 7.—1st and 4th, A. McDougall & Son; 2nd and 3rd, Henry Wilson; 5th, Luxton, Whetham & Fricker.

Female, old, 6.—1st, A. McDougall & Son; 2nd and 3rd, Joseph Telfer; 4th and 5th, Henry Wilson.

Male, young, 4.—1st, A. McDougall & Son; 2nd, Joseph Telfer; 3rd and 4th, Henry Wilson.

Female, young, 5.—1st, A. McDougall & Son; 2nd, Luxton, Whetham & Fricker; 3rd, Joseph Telfer; 4th, Henry Wilson.

Best male, best female and best collection.—A. McDougall & Son.

TOULOUSE GEESE.

Male, old, 12.—1st, E. S. Baker; 2nd, C. A. R. Tilt; 3rd, D. Douglas & Son; 4th, Jas. M. McCormack.

Female, old, 12.—1st, D. Douglas & Son; 2nd, E. S. Baker; 3rd, Thos. M. Shea; 4th, C. A. R. Tilt.

Male, young, 10.—1st and 2nd, D. Douglas & Son; 3rd, Scanlon Bros.; 4th, E. S. Baker.

Female, young, 10.—1st, 2nd and 4th, D. Douglas & Son; 3rd, Thos. M. Shea.

Best male.—E. S. Baker; *best female*—D. Douglas & Son.

EMBDEN GEESE.

Male, old, 8.—1st and 3rd, C. A. R. Tilt; 2nd, E. S. Baker; 4th, Scanlon Bros.

Female, old, 9.—1st, C. A. R. Tilt; 2nd, Philip Berdux; 3rd, E. S. Baker; 4th, Alton Stevens.

Male, young, 11.—1st, E. S. Baker; 2nd, C. A. R. Tilt; 3rd, A. C. Crane; 4th, Jas. M. McCormack.

Female, young, 13.—1st, A. C. Crane; 2nd, C. A. R. Tilt; 3rd, Scanlon Bros.; 4th, Alton Stevens.

Best male and best female.—C. A. R. Tilt.

BROWN CHINESE GEESE.

Male, old, 2.—1st, P. Berdux.

Female, old, 3.—1st, P. Berdux; 2nd, A. H. Switzer.

Male, young, 3.—1st, Luxton, Whetham & Fricker; 2nd, Alton Stevens.

Female, young, 4.—1st, Luxton, Whetham & Fricker; 2nd, P. Berdux; 3rd, Alton Stevens.

WHITE CHINESE GEESE.

Male, old, 6.—1st, E. S. Baker; 2nd and 3rd, J. J. Pearson.

Female, old, 6.—1st, E. S. Baker; 2nd and 3rd, J. J. Pearson.

Male, young, 4.—1st, E. S. Baker; 2nd, G. Readman; 3rd, J. J. Pearson.

Female, young, 4.—1st, E. S. Baker; 2nd, G. Readman; 3rd, J. J. Pearson.

Best male and best female.—E. S. Baker.

A. O. V. GEESE.

Male, old, 2.—1st, Luxton, Whetham & Fricker.

Female, old, 2.—1st, Luxton, Whetham & Fricker; 2nd, I. T. Knight.

Male, young, 2.—1st, I. T. Knight; 2nd, Luxton, Whetham & Fricker.

Female, young, 2.—1st, I. T. Knight; 2nd, Luxton, Whetham & Fricker.

AFRICAN GEESE.

Male, old, 4.—1st, E. S. Baker; 2nd, Bert Wismer; 3rd, C. A. R. Tilt.

Female, old, 4.—1st, C. A. R. Tilt; 2nd, E. S. Baker; 3rd, Thos. M. Shea.

Male, young, 6.—1st, E. S. Baker; 2nd, Thos. M. Shea; 3rd, Alton Stevens.

Female, young, 4.—1st, E. S. Baker; 2nd, Thos. M. Shea; 3rd, C. A. R. Tilt.

Best male.—E. S. Baker; *best female*—C. A. R. Tilt.

AYLESBURY DUCKS.

Male, old, 2.—1st, G. & J. Bogue; 2nd, C. A. R. Tilt.

Female, old, 3.—1st, C. A. R. Tilt; 2nd and 3rd, G. & J. Bogue.

Male, young, 3.—1st, C. A. R. Tilt; 2nd, Alton Stevens; 3rd, Luxton, Whetham & Fricker.

Female, young, 6.—1st and 2nd, G. & J. Bogue; 3rd, Alton Stevens.

Best male.—G. & J. Bogue; *best female*, C. A. R. Tilt.

ROUEN DUCKS.

Male, old, 5.—1st, Thos. M. Shea; 2nd, E. S. Baker; 3rd, G. & J. Bogue.

Female, old, 3.—1st and 2nd, G. & J. Bogue; 3rd, E. S. Baker.

Male, young, 6.—1st, Thos. M. Shea; 2nd, G. & J. Bogue; 3rd, E. S. Baker.

Female, young, 6.—1st and 2nd, G. & J. Bogue; 3rd, Alton Stevens.

Best male.—Thos. M. Shea; *best female*—G. & J. Bogue.

PEKIN DUCKS.

Male, old, 9.—1st, D. Douglas & Son; 2nd and 3rd, C. A. R. Tilt.
Female, old, 10.—1st, D. Douglas & Son; 2nd, C. A. R. Tilt; 3rd, A. C. Crane.
Male, young, 15.—1st, C. A. R. Tilt; 2nd, E. S. Baker; 3rd, A. C. Crane.
Female, young, 15.—1st and 3rd, C. A. R. Tilt; 2nd, A. C. Crane.
Best male and best female.—D. Douglas & Son.

INDIAN RUNNER DUCKS.

Male, old, 7.—1st, E. S. Baker; 2nd and 3rd, E. E. McCombs.
Female, old, 7.—1st, E. E. McCombs; 2nd, E. S. Baker; 3rd, Harry Grimsby.
Male, young, 8.—1st, A. H. Switzer; 2nd and 3rd, E. E. McCombs.
Female, young, 7.—1st and 2nd, E. E. McCombs; 3rd, E. S. Baker.
Best male, A. H. Switzer; *best female*—E. E. McCombs.

CAYUGA DUCKS.

Male, old, 5.—1st, C. A. R. Tilt; 2nd and 3rd, E. S. Baker.
Female, old, 4.—1st and 2nd, E. S. Baker; 3rd, C. A. R. Tilt.
Male, young, 5.—1st and 3rd, E. S. Baker; 2nd, C. A. R. Tilt.
Female, young, 4.—1st, C. A. R. Tilt; 2nd and 3rd, E. S. Baker.
Best male.—C. A. R. Tilt; *best female*—E. S. Baker.

MUSCOVY DUCKS.

Male, old, 5.—1st, E. S. Baker; 2nd and 3rd, P. Berdux.
Female, old, 3.—1st, E. S. Baker; 2nd and 3rd, P. Berdux.
Male, young, 5.—1st and 2nd, E. S. Baker; 3rd, P. Berdux.
Female, young, 5.—1st, E. S. Baker; 2nd and 3rd, P. Berdux.
Best male and best female.—E. S. Baker.

MALLARD DUCKS.

Male, old, 2.—1st and 2nd, H. Karn.
Female, old, 2.—1st and 2nd, H. Karn.
Male, young, 2.—1st and 2nd, H. Karn.
Female, young, 2.—1st and 2nd, H. Karn.
Best male and best female.—H. Karn.

A. O. V. DUCKS.

Male, young, 1.—1st, Luxton, Whetham & Fricker.
Female, young, 1.—1st, Luxton, Whetham & Fricker.

GOLDEN PHEASANTS.

Pair—1st and 2nd, J. S. Mogridge; 3rd, J. & A. Bowling.

GUINEA FOWL.

Pair—1st and 2nd, J. P. & E. A. Hales.

PIGEONS.

BLACK CARRIER.

Cocks, 4.—1st and 2nd, E. Limon.
Hens, 4.—1st, E. Limon; 2nd, P. Clark.

BEST CARRIER.

E. Limon.

DUN CARRIER.

Cocks, 4.—1st and 2nd, E. R. Riener.
Hens, 4.—1st, E. Limon; 2nd, D. G. Waide.

A. O. S. C. CARRIER.

Cocks, 8.—1st, E. Limon; 2nd, P. Clark.
Hens, 9.—1st, E. Limon; 2nd, E. R. Riener.

WHITE POUTER.

Cocks, 3.—1st, Harry Peirce; 2nd, J. H. Magill.
Hens, 3.—1st and 2nd, J. H. Magill.
Best Pouter, J. H. Magill.

BLUE PIED POUTER.

Cocks, 3.—1st and 2nd, J. H. Magill.
Hens, 4.—1st and 2nd, J. H. Magill.

BLACK PIED POUTER.

Cocks, 3.—1st and 2nd, J. H. Magill.
Hens, 2.—1st and 2nd, J. H. Magill.

YELLOW OR RED POUTER.

Cocks, 4.—1st, Harry Peirce; 2nd, J. H. Magill.
Hens, 3.—1st, J. H. Magill; 2nd, Harry Peirce.

BLUE OR BLACK PIED PIGMY POUTER.

Cocks, 5.—1st and 2nd, George Bailey.
Hens, 5.—1st and 2nd, George Bailey.
Best Bird, Geo. Bailey.

A. O. C. PIGMY POUTER.

Cocks, 5.—1st and 2nd, George Bailey.
Hens, 3.—1st, George Bailey; 2nd, J. S. Greenshields.

SOL. C. MUFFED TUMBLER.

Cocks, 4.—1st, W. J. Teale; 2nd, W. J. Campbell.
Hens, 8.—1st, W. J. Teale; 2nd, J. V. McAree.

PARTI-COLORED MUFFED TUMBLERS.

Cocks, 4.—1st and 2nd, J. V. McAree.
Hens, 5.—1st and 2nd, J. V. McAree.

L. F. CLEAN LEG TUMBLERS.

Cocks, 6.—1st and 2nd, J. V. McAree.
Hens, 6.—1st and 2nd, J. V. McAree.

S. F. ALMOND TUMBLERS.

Cocks, 2.—1st, D. G. Waide; 2nd, W. H. Reid.
Hens, 1.—1st, W. H. Reid.

S. F. A. O. C. TUMBLER.

Cocks, 3.—1st and 2nd, W. H. Reid.
Hens, 4.—1st and 2nd, W. H. Reid.

RED BARBS.

Cocks, 1.—2nd, Pine Grove Pigeon Lofts.
Hens, 2.—2nd, D. C. Waide.

BLACK BARBS.

Cocks, 1—2nd, Pine Grove Pigeon Lofts.
Hens, 1.—2nd, Pine Grove Pigeon Lofts.

A. O. S. C. BARBS.

Cocks, 1.—2nd, Pine Grove Pigeon Lofts.
Hens, 1.—2nd, Pine Grove Pigeon Lofts.

TRUMPETERS, ANY COLOR.

Cocks, 3.—1st, Robert Henry; 2nd, W. H. Reid.
Hens, 3.—1st and 2nd, W. H. Reid.

BLACK JACOBINS.

Cocks, 2.—1st and 2nd, R. K. Barker.
Hens, 2.—1st and 2nd, R. K. Barker.

RED JACOBINS.

Cocks, 2.—1st and 2nd, R. K. Barker.
Hens, 2.—1st and 2nd, R. K. Barker.

YELLOW JACOBINS.

Cocks, 3.—1st and 2nd, R. K. Barker.
Hens, 3.—1st and 2nd, R. K. Barker.

WHITE JACOBINS.

Cocks, 2.—1st and 2nd, R. K. Barker.
Hens, 3.—1st and 2nd, R. K. Barker.

A. O. S. C. JACOBINS.

Cocks, 1.—1st, R. K. Barker.
Hens, 2.—1st and 2nd, R. K. Barker.

ORIENTAL FRILLS.

Cocks, 6.—1st and 2nd, E. Limon.
Hens, 5.—1st, E. Limon; 2nd, A. Sutherland.

R. C. ANTWERPS.

Cocks, 2.—1st, Alfred Knight; 2nd, W. H. Reid.
Hens, 2.—1st and 2nd, W. H. Reid.

SILVER DUN ANTWERPS.

Cocks, 2.—1st and 2nd, W. H. Reid.
Hens, 2.—1st, Alfred Knight; 2nd, W. H. Reid.

WHITE FANTAILS.

Cocks, 7.—1st, A. Sutherland; 2nd, J. F. Henry.
Hens, 9.—1st, Geo. Trimble; 2nd, J. F. Henry.

BLUE FANTAILS.

Cocks, 5.—1st and 2nd, J. S. Greenshields.
Hens, 5.—1st, A. & T. Readwin; 2nd, Pine Grove Pigeon Lofts.

BLACK FANTAILS.

Cocks, 4.—1st and 2nd, George Trimble.
Hens, 2.—1st and 2nd, George Trimble.

A. O. S. C. FANTAILS.

Cocks, 3.—1st, A. & T. Readwin; 2nd, J. S. Greenshields.
Hens, 4.—1st and 2nd, J. S. Greenshields.

RED OR YELLOW MAGPIE.

Cocks, 9.—1st and 2nd, Ottawa Pigeon Lofts.
Hens, 8.—1st and 2nd, Ottawa Pigeon Lofts.
Best Exhibit.—Fred Hambley.

A. O. C. MAGPIE.

Cocks, 6.—1st, Fred Hambly; 2nd, W. H. Reid.
Hens, 7.—1st, Fred Hambly; 2nd, Ottawa Pigeon Lofts.

BLUE OR BLACK CHECKERED SHOW HOMER.

Cocks, 5.—1st, Alfred Knight; 2nd, Perkins & Schultz.
Hens, 5.—1st, Perkins & Schultz; 2nd, Alfred Knight.

A. O. C. SHOW HOMER.

Cocks, 5.—1st and 2nd, Alfred Knight.
Hens, 6.—1st, Harold Rawnsley; 2nd, Alfred Knight.

BLACK SWALLOW.

Cocks, 2.—1st, Frank Webster; 2nd, W. H. Reid.
Hens, 3.—1st, D. G. Waide; 2nd, Frank Webster.

A. O. S. C. SWALLOWS.

Cocks, 4.—1st, D. G. Waide; 2nd, Robert Henry.
Hens, 3.—1st, Robert Henry.

A. O. C. SWALLOWS.

Cocks, 4.—1st, Robert Henry; 2nd, Dr. Pingel & Son.
Hens, 3.—1st, Robert Henry.

CHECKERED DRAGOONS.

Cocks, 6.—1st, Wilbert Steer; 2nd, Earl Powell.
Hens, 3.—1st, Wilbert Steer; 2nd, Melvin Gould.
Best Bird.—Wilbert Steer.

A. O. C. DRAGOONS.

Cocks, 6.—1st, W. J. Teale; 2nd, Pine Grove Pigeon Lofts.
Hens, 4.—1st, Wilbert Steer; 2nd, W. J. Teale.

ARCHANGELS.

Cocks, 6.—1st, W. H. Reid; 2nd, A. & T. Readwin.
Hens, 6.—1st and 2nd, W. H. Reid.

NUNS.

Cocks, 5.—1st and 2nd, C. H. Pudifin.
Hens, 6.—1st, C. H. Pudifin; 2nd, Pine Grove Pigeon Lofts.

AFRICAN BLUE OR SILVER OWLS.

Cocks, 3.—1st, Frank Bible, Jr.
Hens, 3.—1st, J. S. Greenshields; 2nd, Frank Bible, Jr.
Best African Owl.—H. Rawnsley.

A. O. C. AFRICAN OWLS.

Cocks, 9.—1st, Harold Rawnsley; 2nd, Harold Rawnsley.
Hens, 12.—1st, Harold Rawnsley; 2nd, Harold Rawnsley.

ENGLISH BLUE OR SILVER OWL.

Cocks, 4.—1st, Harold Rawnsley; 2nd, W. H. Reid.
Hens, 4.—1st, W. H. Reid; 2nd, R. W. Allen.
Best English Owl.—H. Rawnsley.

A. O. C. ENGLISH OWLS.

Cocks, 2.—1st and 2nd, R. W. Allen.
Hens, 3.—1st, Harold Rawnsley; 2nd, W. H. Reid.

A. O. V. OWLS.

Cocks, 5.—1st, Pine Grove Pigeon Lofts; 2nd, W. H. Reid.
Hens, 5.—1st, Pine Grove Pigeon Lofts; 2nd, A. Sutherland.
Best Bird.—W. H. Reid.

BLACK TURBITS.

Cocks, 1.—1st, J. S. Greenshields.
Hens, 1.—1st, George Bailey.

A. O. C. TURBITS.

Cocks, 6.—1st, J. S. Greenshields; 2nd, George Bailey.
Hens, 2.—1st and 2nd, J. S. Greenshields.

A. O. S. VARIETY PIGEONS.

Cocks, 6.—1st, Harold Rawnsley; 2nd, A. & T. Readwin.
Hens, 6.—1st, Harold Rawnsley; 2nd, Perkins & Schultz.

PIGEONS BRED IN 1911 (MALE OR FEMALE).

CARRIERS, ANY COLOR.

Cocks and Hens, 6.—1st, P. Clark; 2nd, E. Limon.

PIGMY POUTER, ANY COLOR.

Cocks and Hens, 6.—1st and 2nd, George Bailey.

A. O. V. POUTER, ANY COLOR.

Cocks and Hens, 2.—1st, J. H. Magill.

MUFFED TUMBLER, ANY COLOR.

Cocks and Hens, 4.—1st, W. J. Campbell; 2nd, Dr. Pingel & Son.

L. F. TUMBLER, ANY COLOR.

Cocks and Hens, 5.—1st and 2nd, J. V. McAree.

JACOBIN, ANY COLOR.

Cocks and Hens, 2.—1st and 2nd, R. K. Barker.

ORIENTAL FRILL, ANY COLOR.

Cocks and Hens, 2.—1st and 2nd, E. Limon.

FANTAIL, ANY COLOR.

Cocks and Hens, 3.—1st, George Trimble; 2nd, J. F. Henry.

MAGPIE, ANY COLOR.

Cocks and Hens, 6.—1st, W. H. Reid; 2nd Ottawa Pigeon Lofts.

SHOW HOMER, ANY COLOR.

Cocks and Hens, 4.—1st, Chas. Johnson; 2nd, Perkins & Schultz.

DRAGOON, ANY COLOR.

Cocks and Hens, 5.—1st, Melvin Gould; 2nd, Wilbert Steer.

ARCHANGEL, ANY COLOR.

Cocks and Hens, 3.—1st, W. H. Reid; 2nd, A. & T. Readwin.

NUN, ANY COLOR.

Cocks and Hens, 2.—1st and 2nd, C. H. Pudifin.

ENGLISH OWL, ANY COLOR.

Cocks and Hens, 3.—1st, R. W. Allen; 2nd, E. Limon.

A. O. V. OWL, ANY COLOR.

Cocks and Hens, 4.—1st, Harold Rawnsley; 2nd, T. H. Reid.

TURBIT, ANY COLOR.

Cocks and Hens, 3.—1st and 2nd, J. S. Greenshields.

ABYSSINIAN CAVIES.

Pair, 2.—1st and 2nd, W. E. McKay.

PERUVIAN CAVIES.

Pair, 2.—1st and 2nd, W. E. McKay.

SMOOTHED-COATED CAVIES.

Pair, 2.—1st and 2nd, W. E. McKay.

LOP-EARED (SOL. C.) RABBIT.

Male, 1.—1st, W. E. McKay.
Female, 2.—2nd, W. E. McKay.

LOP-EARED (A. O. V.) RABBIT.

Male, 1.—1st, W. E. McKay.
Female, 2.—1st and 2nd, W. E. McKay.

DUTCH RABBIT.

Male, 3.—1st and 2nd, Leonard Parker.
Female, 4.—1st and 2nd, Leonard Parker.

A. O. V. RABBIT.

Male, 5.—1st, Maurice Page; 2nd, W. E. McKay.
Female, 5.—1st, Maurice Page; 2nd, W. E. McKay.

BELGIAN HARE.

Male, 3.—1st and 2nd, Thos. F. Holmes.
Females, 2.—1st and 2nd, Thos. F. Holmes.

UTILITY FOWLS.

Pens, 18.—1st, J. L. Brown; 2nd, Mrs. E. D. Graham; 3rd, A. F. Skinner.

SELLING CLASS.

DORKINGS.

Males, 8.—1st. G. A. Burns; 2nd, C. H. Wilson; 3rd, Jas. M. McCormack.
Females, 4.—1st, C. H. Wilson; 2nd, F. W. Krouse; 3rd, G. A. Burns.

PLYMOUTH ROCKS.

Males, 46.—1st, M. R. Hoover; 2nd, F. C. Dulmage; 3rd, A. & T. Readwin.
Females, 5.—1st and 3rd, Thos. T. Winstanley; 2nd, F. C. Dulmage.

WYANDOTTES.

Males, 48.—1st, Wm. J. Reid; 2nd, F. W. Krouse; 3rd, W. Lemon.
Females, 16.—1st, W. Lemon; 2nd, R. W. Vout; 3rd, P. J. McEwen.

ORPINGTONS.

Males, 18.—1st, C. J. Daniels; 2nd, C. M. Deverell; 3rd, P. J. McEwen.
Females, 7.—1st, Harry T. Lush; 2nd, Wm. J. Hood; 3rd, P. J. McEwen.

MINORCAS.

Males, 15.—1st and 2nd, John H. Karn; 3rd, Chas. Gould.
Females, 6.—1st, H. Dunning; 2nd, R. J. Teskey; 3rd, Thos. T. Winstanley.

LEGHORNS.

Males, 25.—1st, P. J. McEwen; 2nd, F. Wales; 3rd, D. Douglas & Son.
Females, 17.—1st, F. Wales; 2nd and 3rd, A. H. Switzer.

RHODE ISLAND REDS.

Males, 49.—1st, A. W. Tyson; 2nd, Wm. J. Reid; 3rd, Wm. Pearson.
Females, 9.—1st, W. M. J. Reid; 2nd and 3rd, J. E. Klager.

ASIATICS, ANY VARIETY.

Males, 4.—1st, C. M. Deverell; 2nd, R. McCurdy; 3rd, F. Wales.
Females, 4.—1st and 3rd, R. McCurdy; 2nd, F. Wales.

ANY OTHER VARIETY.

Males, 22.—1st, R. L. Wheadon; 2nd and 3rd, F. W. Krouse.
Females, 14.—1st and 2nd, R. L. Wheadon; 3rd, Furneaux Bros.

PIGEONS, ANY VARIETY.

Males, 5.—1st, R. K. Barker; 2nd, J. F. Henry.
Females, 5.—1st, J. F. Henry; 2nd, A. & T. Readwin.

DRESSED POULTRY.

Pair Brahmas, of 1911, 4.—1st and 2nd, Gardiner Wood.

Pair Langshans, of 1911, 3.—1st, 2nd and 3rd, Gardiner Wood.

Pair Plymouth Rock Cockerels, 22.—1st and 3rd, J. E. Mounce; 2nd, Gardiner Wood.

Pair Plymouth Rock Pullets, of 1911, 9.—1st, 2nd and 3rd, J. E. Mounce.

Pair Wyandotte Cockerels, of 1911, 7.—1st, J. E. Mounce; 2nd, St. Lawrence Poultry Yards; 3rd, Adam A. Armstrong.

Pair Wyandotte Pullets, of 1911, 3.—1st, 2nd and 3rd, Adam A. Armstrong.

Pair Rhode Island Reds, of 1911, 14.—1st and 3rd, Gardiner Wood; 2nd, Arthur F. Skinner.

Pair Minorcas or Andalusians, of 1911, 7.—1st, 2nd and 3rd, J. E. Mounce.

Pair Leghorns, of 1911, 13.—1st and 3rd, Gardiner Wood; 2nd, Arthur F. Skinner.

Pair Dorkings, of 1911, 10.—1st, 2nd and 3rd, Gardiner Wood.

Pair Houdans, La Fleche Creve Coeurs, of 1911, 2.—1st, J. E. Mounce; 2nd, F. Wales.

Pair Games, 3.—1st, 2nd and 3rd, Geo. Fyfe.

Pair Hamburgs, of 1911, 4.—1st, J. E. Mounce.

Pair Orpington Cockerels, of 1911, 14.—1st, J. E. Mounce; 2nd and 3rd, Gardiner Wood.

Pair Orpington Pullets, of 1911, 2.—1st, J. E. Mounce; 2nd, Gardiner Wood.

Turkey, Any Age, Male, 6.—1st, Joseph Miles; 2nd and 3rd, J. Tomalin.

Pair Turkeys, Any Age, Female, 3.—1st and 2nd, J. Tomalin; 3rd, Luxton, Whetham & Fricker.

Pair Turkeys, of 1911, Male, 4.—1st and 2nd, J. Tomalin; 3rd, Joseph Miles.

Pair of Turkeys, of 1911, Female, 5.—1st and 2nd, J. Tomalin; 3rd, Joseph Miles.

Pair White Geese, of 1911, 7.—1st, Joseph Miles; 2nd and 3rd, Scanlon Bros.

Pair Colored Geese, of 1911, 8.—1st and 3rd, Joseph Miles; 2nd, Scanlon Bros.

Pair White Ducks, of 1911, 7.—1st, 2nd and 3rd, C. D. Worthington.

Pair Colored Ducks, of 1911, 7.—1st and 2nd, Joseph Miles; 3rd, Luxton, Whetham & Fricker.

Six Brahmas, Cochins or Langshans, of 1911, 4.—1st, Gardiner Wood.

Six Plymouth Rocks, Wyandottes or Rhode Island Reds, of 1911, 21.—1st and 2nd, J. E. Mounce; 3rd, Gardiner Wood.

Six Minorcas, Andalusians or Javas, of 1911, 3.—1st, J. E. Mounce; 2nd, J. P. & E. A. Hales; 3rd, J. Tomalin.

Six Dorkings, Houdans, La Fleche, Creve-Coeurs or Orpingtons, of 1911, 9.—1st, Gardiner Wood; 2nd, J. E. Mounce; 3rd, Arthur F. Skinner.

Six Games, of 1911, 1.—1st, Geo. Fyfe.

Six Leghorns or Hamburgs, of 1911, 7.—1st, Gardiner Wood; 2nd, Arthur F. Skinner; 3rd, J. E. Mounce.

Six Turkeys, of 1911, 3.—1st, Joseph Miles; 2nd, J. Tomalin; 3rd, Luxton, Whetham & Fricker.

Six Geese, of 1911, 5.—1st, Joseph Miles; 2nd and 3rd, Scanlon Bros.

Six Ducks, of 1911, 5.—1st, Joseph Miles; 2nd, C. D. Worthington; 3rd, J. Tomalin.

Twelve Fatted Cockerels, 28.—1st and 2nd, Gardiner Wood; 3rd and 4th, J. E. Mounce; 5th, Geo. Fyfe.

One Dozen White Eggs, 5.—1st and 2nd, F. W. Krouse; 3rd, Wm. J. Wood.

One Dozen Brown Eggs, 9.—1st and 2nd, F. W. Krouse; 3rd, Arthur F. Skinner.

Six Squabs, 8.—1st, J. Tomalin; 2nd, A. & T. Readwin; 3rd, Wm. J. Wood.

PRIZE WINNERS AT EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW.

OTTAWA, ONT., JANUARY 16 to 19, 1912.

HORSES.

Clydesdale Stallions, foaled previous to January 1st, 1908. Ten entries.

1st—Baron Kelvin (imp.) [12462] (13991), bay, face, nigh fore ankle, off fore and hind legs white, foaled 1906; sire, Baron's Pride [3067] (9122); dam, Maud of High Borgue [9126] (15980). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park, Ont.

2nd—Hyacinthus (imp.) [11251] (13531), foaled May 8th, 1904; sire, Royal Edward [6141] (11495); dam, Fortune's Favorite [17220] (14136). Exhibited by Smith & Richardson, Columbus, Ont.

3rd—Sir Spencer (imp.) [9655], foaled 1904; sire, Sir Hugo [4923]; dam, Bet (18560). Exhibited by R. Ness & Son, Howick, Que.

4th—Edward Darnley (imp.) [9609] (13461), bay, face, nigh fore and both hind legs and off hind ankle white, foaled June 6th, 1904; sire, Royal Edward [6141] (11495); dam, Dora B. Colbeck [8534] (11205). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park,. Ont.

5th—Whitekirk Hero (imp.) [10721] (15461), bay, stripe, fore feet and pasterns, and hind feet and legs white, foaled May, 1907; sire, Aberlady (imp.) [9228] (11988); dam, Miss of Newbyth [21294] (23404). Exhibited by H. J. Allison, Chesterville, Ont.

6th—Golden Crown (imp.) [10656], foaled May, 1905; sire, Gold Mine [2904]; dam, Ruby [19309]. Exhibited by Wm. Meharey, Russell, Ont.

7th—Dunure Burns (imp.) [11678] (14652), brown, nigh fore and hind legs white, foaled May 6th, 1907 sire, Baron of Buchlyvie [5353] (11263); dam, Dunure Fontenelle [22945] (19420). Exhibited by Barber Bros., Gatineau Point, Que.

Clydesdale Stallions, foaled in 1908. Thirteen entries.

1st—Bydand (imp.) [12482] (15165), black, white face, black snip on nose, fore legs black with little white on front of off knee and on back of nigh knee, hind legs white, foaled June 13th, 1908; sire, Baron of Buchlyvie [5353] (11263); dam, Natalie (21859). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park, Ont.

2nd—Baron Squire (imp.) [12522], foaled 1908; sire, Baron's Pride [3067]; dam, Queen Margaret of Barcheskie [8695]. Exhibited by R. Ness & Son, Howick, Que.

3rd—Lord Hugo (imp.) [12449] (15291), foaled May 20th, 1908; sire, Sir Hugo [4923] (10924); dam, Lady Meadowbank [19002]. Exhibited by Smith & Richardson, Columbus, Ont.

4th—Baron Mansfield (imp.) [11466] (15139), foaled April 29th, 1908; sire, Baron's Pride [3067] (9122); dam, Miranda of Chapleton [10005] (13857). Exhibited by Smith & Richardson, Columbus, Ont.

5th—Milton's Last (imp.) [12487] (15955), bay, face and legs white, foaled April 27th, 1908; sire, Baron's Pride [3067] (9122); dam, Lady Fraser [21593] (17892). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park, Ont.

6th—Title Deeds (imp.) [12778], foaled May, 1908; sire, Everlasting [5346]; dam, Birch Bloom [15780]. Exhibited by William Meharey, Russell, Ont.

7th—Silver Mark (imp.) [10230] (15087), black face and legs white, foaled April 24th, 1908; sire, Silver Cup [5653] (11184); dam, Pretty Lass [20344] (21795). Exhibited by Adam Scharf, Cummings' Bridge, Ont.

8th—Mikado (imp.) [12926] (15954), brown, ratch, hind legs white, foaled April 14th, 1908; sire, Baron Ruby [10045] (11268); dam, Victoria 3rd (18103). Exhibited by Barber Bros., Gatineau Point, Que.

Clydesdale Stallions, foaled in 1909. Twelve entries.

1st—Royal Cup (imp.) [12524], foaled 1909; sire, Silver Cup [5653]; dam, Rosie of Chalmerston [21503]. Exhibited by R. Ness & Son, Howick, Que.

2nd—Predominant (imp.) [12490] (16239), light bay, face and legs white, foaled May 18th, 1909; sire, Mamilius [12480] (14264); dam, Lady Cook (23819). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park, Ont.

3rd—Fyvie Gallant (imp.) [12485] (15842), bay, face and legs white, foaled April 20th, 1909; sire, Everlasting [5346] (11331); dam, Lady Madge [17479] (14553). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park, Ont.

4th—Douglas Raider (imp.) [12452] (16235), dark brown, face and legs white, foaled April, 1909; sire, Blacon Sensation [8048] (12487); dam, Meg of Roberthill (28200). Exhibited by Smith & Richardson, Columbus, Ont.

5th—Dunure Chieftain (imp.) [12450] (15805), black, face and legs white, foaled May, 1909; sire, Baron of Bucklyvie [5353] (11263); dam, Jess of Grinsdale (23811). Exhibited by Smith & Richardson, Columbus, Ont.

6th—Sir Grenville (imp.) [12925] (16077), bay, stripe, nigh fore and off hind legs white, little white on other legs, foaled April 16th, 1909; sire, Sir Victor (imp.) [10082] (13776); dam, Nannie (23888). Exhibited by Barber Bros., Gatineau Point, Que.

7th—King of Diamonds (imp.) [12486] (15905), bay, face and legs white, foaled May 5th, 1909; sire, Everlasting [5346] (11331); dam, Queen of Diamonds (24281). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park, Ont.

Clydesdale Stallions, foaled on or after January 1st, 1910. Three entries.

1st—Kelvin Pride (imp.) [12454] (16237), bay, face, off fore and hind legs white, foaled May 30th, 1910; sire, Baron Kelvin [12462] (13991); dam, Lily of Leathes [7480] (15802). Exhibited by Smith & Richardson, Columbus, Ont.

2nd—Laird of Hopetoun (imp.) [12927] (16400), bay, stripe, little white on nigh fore foot, hind legs white, foaled April 25th, 1910; sire, Baron Hopetoun (imp.) [10851] (13989); dam, Maggie 2nd [6533] (15935). Exhibited by Barber Bros., Gatineau Point, Que.

Clydesdale Mares, foaled previous to January 1st, 1909. Eight entries.

1st—Nan Spencer (imp.) [22848], foaled 1908; sire, Sir Spencer [9655]; dam, Nancy Lee [22606]. Exhibited by R. Ness & Son, Howick, Que.

2nd—Lady Weighton (imp.) [26161] (28136), bay, with grey hairs, legs white, white mark over loin, foaled May 26th, 1907; sire, Dunure Chapman [10047] (12128); dam, Brax Love (28130). Exhibited by H. J. Allison, Chesterville, Ont.

3rd—Scott's Lady (imp.) [24500] (25733), dark bay, face and hind legs white, foaled June 1st, 1906; sire, Montrave Ronald (imp.) [10077] (11121); dam, Queen Mary [24486] (18248). Exhibited by H. J. Allison, Chesterville, Ont.

4th—Brown Beauty (imp.) [22162], foaled 1907; sire, Benedict [3664]; dam, Jean of Culmain [21155]. Exhibited by R. Ness & Son, Howick, Que.

5th—Black Princess (imp.) [24495] (25728), black, with white hairs, blaze, nigh fore pastern and off fore leg, nigh hind leg and off hind foot in front of pastern white, foaled May 4th, 1907; sire, Marmion [5466] (11429); dam, Nannie Pride [24482] (20917). Exhibited by H. J. Allison, Chesterville, Ont.

6th—Heroine (imp.) [13026] (Vol. 30 S.), roan, front of face white, near fore leg and hind legs white, white patch on near side, foaled April 27th, 1904; sire, Castle Hero [7576] (12086); dam, Whitrigg Bell [12020] (12992). Exhibited by Thomas McLean, Ormond, Ont.

Clydesdale Mares, foaled in 1909. Fourteen entries.

1st—Darling of Begg (Imp.) [26401], foaled 1909; sire, Sir Spencer [9655]; dam, Dunure Lily [21590]. Exhibited by R. Ness & Son, Howick, Que.

2nd—Iron Duchess (imp.) [26224] (28202), brown, white hairs through coat, face and hind legs white, foaled June 4th, 1909; sire, Iron Duke [9892] (13535); dam, Lady Douglas of Bombie (24119). Exhibited by Smith & Richardson, Columbus, Ont.

3rd—Miss MacDougall (imp.) [26244] (28197), foaled May, 1909; sire, Benedict [3664] (10315); dam, Nannie of Aughentibber [28204]. Exhibited by Smith & Richardson, Columbus, Ont.

4th—Bess Spencer (imp.) [26400], foaled 1909; sire, Sir Spencer [9655]; dam, Floss of Balquhomrie [17727]. Exhibited by R. Ness & Son, Howick, Que.

5th—Cross Lass (imp.) [26288] (28281), bay, stripe, hind legs white, half way to hocks, foaled May 1st, 1909; sire, Crossrigg [12461] (13426); dam, Nellie of Greenhill (13260). Exhibited by Graham, Renfrew & Co., Ltd., Bedford Park, Ont.

6th—Grace Beddie (imp.) [26232] (28185), bay, stripe, off fore foot black, others white, foaled June 11th, 1909; sire, Crossrigg [12461] (13426); dam, Banks of Strichen Grace (19114). Exhibited by Smith & Richardson, Columbus, Ont.

7th—Lady Bowie (imp.) [26403], foaled 1909; sire, Earl O'Clay [12035]; dam, Nellie Elator [21131]. Exhibited by R. Ness & Son, Howick, Que.

Clydesdale Mares, foaled on or after January 1st, 1910. Two entries.

1st—Miss Fernie [26225] (28203), foaled May, 1910; sire, Equerry [9852] (13465); dam, Pride of Lochside [28201]. Exhibited by Smith & Richardson, Columbus, Ont.

2nd—Mildred of Allanfearn [26404], foaled 1910; sire, Honour [10928]; dam, Lizzie of Allanfearn [16020]. Exhibited by R. Ness & Son, Howick, Que.

Canadian-Bred Clydesdale Stallions, foaled previous to January 1st, 1909.
Three entries.

1st—Koyama [8029], foaled June 2nd, 1905; sire, The Rejected [4800] (11969); dam, Maggie Carrick [14580]. Exhibited by David G. Boyd, Kars, Ont.

2nd—Baron Silloth's Heir [9443], foaled April 25th, 1908; sire, Baron Silloth [6128] (12470); dam, Daisy of Cherry Bank [8628]. Exhibited by William Nussey, Howick Station, Que.

3rd—Baron's Kid [9742], dark brown, white face, nigh fore and both hind legs white, foaled June 17th, 1908; sire, Ace of Spades (imp.) [7234] (11990); dam, Jane Austen (imp.) [10587]. Exhibited by Thomas Clarey, Ottawa, Ont.

Canadian-Bred Clydesdale Stallions, foaled in 1909. Five entries.

1st—Duke of Ormond [10575], black, face, nigh fore and hind feet white, foaled July 2nd, 1909; sire, Adam Bede (imp.) [4783] (11992); dam, Louie Archer [8096]. Exhibited by Thomas McLean, Ormond, Ont.

2nd—Right of Way [10668], foaled April 27th, 1909; sire, Cairndale [6078] (12883); dam, Chestnut Belle [9915]. Exhibited by David G. Boyd, Kars, Ont.

3rd—Clan Merit [10282], deep bay, stripe, four white legs, foaled June 9th, 1909; sire, Clan Mac (imp.) [4255] (11656); dam, Queen of Rocky Farm [5293]. Exhibited by R. N. Harris, Gatineau Point, Que.

4th—Baron Hazen [13020], bay, face and feet white, foaled May 13th, 1909; sire, Baron Williamston (imp.) [4102] (12043); dam, Hillside Pearl [3312]. Exhibited by Alonzo H. A. Richardson, Hazledean, Ont.

5th—Wandering Willie [10275], bay, face, near fore foot and hind legs white, foaled May 26th, 1909; sire, Knight of Merryfield (imp.) [7760] (13051); dam, Maud Macmorland [8580]. Exhibited by Charles Dunlop, Rideau View, Ont.

Canadian-Bred Clydesale Stallions, foaled on or after January 1st, 1910. Eight entries.

1st—Prince Ivory [12442], bay, stripe, nigh fore and both hind legs white, foaled July 21st, 1910; sire, Black Ivory (imp.) [7761] (13367); dam, Fashion Belle (imp.) (14232). Exhibited by Smith & Richardson, Columbus, Ont.

2nd—Baron Shapely [10982], foaled June 2nd, 1910; sire, Black Ivory [7761]; dam, Sweet Afton [13789]. Exhibited by John Bright, Myrtle Station, Ont.

3rd—Major Flush [12350], bay, stripe, nigh fore foot and hind legs white, foaled June 4th, 1910; sire, Royal Flush (imp.) [4790] (11906); dam, Lady Cairnton [5119]. Exhibited by Peter Christie, Manchester, Ont.

4th—Acme's Fame [10999], bay, face, off fore hoofhead and hind fetlocks white, foaled May 11th, 1910; sire, Acme (imp.) [6187] (10485); dam, Lady Letrault (imp.) [13762]. Exhibited by W. W. Holtby, Manchester, Ont.

5th—Viscount of the Briars [12243], foaled May 30th, 1910; sire, Viscount Lothian, [9369] (14419); dam, Maud of the Briars [18569]. Exhibited by D. A. McCormack, Brysonville, Que.

Canadian-Bred Clydesdale Mares, foaled previous to January 1st, 1909. Five entries.

1st—Lady Gold [17055], bay, face and legs white, spot on belly, foaled June 4th, 1906; sire, Fyvie Gold (imp.) [4696] (11341); dam, Florence McLaws [3500]. Exhibited by Adam Scharf, Cummings' Bridge.

2nd—Cora (imp.) [19278], foaled May 21st, 1908; sire, Baron Silloth [6128] (12470); dam, Jeanie [11668]. Exhibited by John Brodie, Verdun, Que.

3rd—Hatty McIntosh [7737], bay, white strip on face and little white on hind pasterns, foaled April 17th, 1905; sire, The McIntosh [4300] (11558); dam, Lily McInnes [2610]. Exhibited by Nixon Scharf, Cummings' Bridge, Ont.

4th—Louie Archer [8096], bay, stripe, white feet, foaled July 11th, 1903; sire, The Royal Arch [3171]; dam, Louie Uamvar [3254]. Exhibited by Thomas McLean, Ormond, Ont.

5th—Belle of Gloucester [22224], roan, face and feet white, foaled June 2nd, 1908; sire, Prince Fuchius (imp.) [4299] (11143); dam, Heroine (imp.) [13026]. Exhibited by Thomas McLean, Ormond, Ont.

Canadian-Bred Clydesdale Mares, foaled in 1909. Five entries.

1st—Rosvelva [24119], bay, stripe, white legs, foaled May 2nd, 1909; sire, President Roosevelt (imp.) [7759] (13651); dam, Queenie (imp.) [13791] (18587). Exhibited by T. L. Fairbairn, Billings' Bridge, Ont.

2nd—Hilda Priam [21407], foaled June 8th, 1909; sire, Prince Priam [3616] (10854); dam, Royal Winnafred [5143]. Exhibited by Smith & Richardson, Columbus, Ont.

3rd—Dalmena Queen of Cherry Bank [20240], foaled April 16th, 1909; sire, Dalmore (imp.) [5983] (12545); dam, Daisy of Cherry Bank [8628]. Exhibited by A. Nussey, Brysonville, Que.

4th—Salome 7th [20772], foaled July 1st, 1909; sire, Inheritor (imp.) [7765] (13855); dam, Salome 5th (imp.) [4777]. Exhibited by N. G. Valiquette, Montreal, Que.

5th—Highland Lassie [27441], black, face and legs white, foaled June 10th, 1902; sire, Rosebank (imp.) [4100] (11882); dam, Dina Black (imp.) [11337]. Exhibited by John Paul, Russell, Ont.

Canadian-Bred Clydesdale Mares, foaled on or after January 1st, 1910. Two entries.

1st—Bell Ivory [24541], foaled June 15th, 1900; sire, Black Ivory [7761] (11367); dam, Queen Roxbury [4790]. Exhibited by William Pollock, Seagrave, Ont.

2nd—Lady Baron [23323], foaled April 23rd, 1910; sire, Baron Elrig [4506] (13324); dam, Nell Cairnton [6648]. Exhibited by B. Henry, Bell's Corners, Ont.

Canadian-Bred Clydesdale Stallions, foaled previous to January 1st, 1909, shown by Amateur Exhibitors. Two entries.

1st—Baron Silloth's Heir [9443]. Exhibited by William Nussey, Howick Station, Que.

2nd—Baron's Kid [9742]. Exhibited by Thomas Clarey, Ottawa, Ont.

Canadian-Bred Clydesdale Stallions, foaled in 1909, shown by Amateur Exhibitors. Three entries.

1st—Duke of Ormond [10575]. Exhibited by Thomas McLean, Ormond, Ont.

2nd—Baron Hazel [13020]. Exhibited by Alonzo H. A. Richardson, Hazeldean, Ont.

3rd—Wandering Willie [10275]. Exhibited by Charles Dunlop, Rideau View, Ont.

Canadian-Bred Clydesdale Stallions, foaled on or after January 1st, 1910, shown by Amateur Exhibitors. Six entries.

1st—Major Flush [12350]. Exhibited by Peter Christie, Manchester, Ont.

2nd—Acme's Fame [10999]. Exhibited by W. W. Holtby, Manchester, Ont.

3rd—Fiscal Chief [12959]. Exhibited by William Ormiston & Sons, Brooklin, Ont.

4th—Viscount of the Briars [12243]. Exhibited by D. A. McCormack, Brysonville, Que.

5th—Acme Baron [12441]. Exhibited by F. Franklin, Shirley, Ont.

6th—Coronation [12356], foaled June 8th, 1910; sire, Aberlady, [9228]; dam, Nettie Baron [3658]. Exhibited by George R. Bradley, Carsonby, Ont.

Canadian-Bred Clydesdale Mares, foaled previous to January 1st, 1909, shown by Amateur Exhibitors. Four entries.

1st—Cora (imp.) [19278]. Exhibited by John Brodie, Verdun, Que.

2nd—Louie Archer [8096]. Exhibited by Thomas McLean, Ormond, Ont.

3rd—Belle of Gloucester [22224]. Exhibited by Thomas McLean, Ormond, Ont.

4th—Nettie Baron [3658], foaled May 4th, 1902; sire, Royal Baron [3123]; dam, Lilly Marcinnes [536]. Exhibited by George R. Bradley, Carsonby, Ont.

Canadian-Bred Clydesdale Mares, foaled in 1909, shown by Amateur Exhibitors. Four entries.

1st—Dalmena Queen of Cherry Bank [20240]. Exhibited by A. Nussey, Brysonville. Que.

2nd—Salome 7th [20772]. Exhibited by N. G. Valiquette, Montreal, Que.

3rd—Highland Lassie [27441]. Exhibited by John Paul, Russell, Ont.

4th—Lil O'Carsonby [18521], foaled August 7th, 1909; sire, Perfection [6438]; dam, Nettie Baron [3658]. Exhibited by George R. Bradley, Carsonby, Ont.

Hackney Stallions, 15.2 hands or over, any age. (Age Considered.) Four entries.

1st—Terrington Narcissus (imp.) —511— (10905), bay, near fore coronet and hind pasterns white, foaled 1908; sire, Naffertonite (3824); dam, Terrington Majestic (13974). Exhibited by Graham, Renfrew & Co., Ltd., Bedford Park, Ont.

2nd—Coveney Marmion (imp.) —239— (9173), dark chestnut, white stripe, left hind foot white, foaled 1903; sire, Witham Marmion (8037); dam, Lady Mayoress (2943). Exhibited by W. C. Crummer, Wallaceburg, Ont.

3rd—Territorial Flashlight —481—, dark chestnut with star, foaled May 19th, 1908; sire, Terrington Flashlight —448— (9519); dam, Sundance —81—. Exhibited by J. R. Thompson, Guelph, Ont.

Hackney Stallions, under 15.2 hands, any age. (Age Considered.) Five entries.

1st—Terrington Semaphore (imp.) —512— (10906), bay, near hind pastern white, small white spot on front of near fore coronet, few white spots on off fore coronet, foaled 1908; sire, Terrington Temple Bar (9464); dam, Terrington Sunlight (14785). Exhibited by Graham, Renfrew & Co., Ltd., Bedford Park, Ont.

2nd—Progress —614—, chestnut, hind legs white half-way to hocks, foaled June 30th, 1909; sire, Prong Buck —366—; dam, Playful —96—. Exhibited by J. R. Thompson, Guelph, Ont.

3rd—Warwick —615—, brown, large star, near hind leg white, foaled June 5th, 1909; sire, Warwick Modle —304— 8694; dam, Ruth —126—. Exhibited by J. R. Thompson, Guelph, Ont.

4th—Mathias 2nd —522—, brown, 14.3, foaled April, 1909; sire, Mathias (6473); dam, Ardimersay Verona 429. Exhibited by T. B. Macaulay; E. Watson, Manager, Hudson Heights, Que.

5th—Duke of Conquest —604—, foaled April 29, 1910; sire, Cranswick Duke —430— (9673); dam, Miss Conquest, (imp.) —509— (17584). Exhibited by Mrs. George Edd. Stacey, Ottawa, Ont.

Hackney Mares foaled previous to January 1st, 1909. Seven entries.

1st—Ophelia's Heiress (imp.) —481—, chestnut, four ankles white, stripe, foaled April, 1906; sire, Polonius (4931); dam, Tow-thrope Girl 16295. Exhibited by T. B. Macaulay; E. Watson, Manager, Hudson Heights, Que.

2nd—Cymbal (imp.) —482—, chestnut mare, face and hind ankles white, foaled April, 1901; sire, Mathias (6473); dam, Lady Crawford 2887. Exhibited by T. B. Macaulay; E. Watson, Manager, Hudson Heights, Que.

3rd—Impetuous —423—, chestnut, star and snip, near fore and both hind legs, white; foaled May 20th, 1907; sire, Commodore —150— (6695); dam, Playful —96—. Exhibited by J. R. Thompson, Guelph, Ont.

4th—Ophelia's Fashion (imp.) —495—, foaled 1904; sire, Polonius [4391]; dam, Chance (5128). Exhibited by N. G. Valiquette, Montreal, Que.

5th—Rebus —524—, bay, small star, near hind fetlock white, foaled May 9th, 1908; sire, Commodore —150— (6695); dam, Rebellious Susan —378—. Exhibited by J. R. Thompson, Guelph, Ont.

Hackney Mares, foaled on or after January 1st, 1909. Two entries.

1st—Reta —752—, dark chestnut, star and hind legs white, foaled May 25th, 1910; sire, Warwick Model —304— 8699; dam, Ruth —126—. Exhibited by J. R. Thompson, Guelph, Ont.

2nd—Royal Ophelia (imp.) —620—, chestnut mare, stripe, four ankles white, foaled June, 1909; sire, Royal Ophelian (8993); dam, Cymbal —482—. Exhibited by T. B. Macaulay; E. Watson, Manager, Hudson Heights, Que.

Best Hackney Stallion.

Terrington Semaphore (imp.) —512— (10906). Exhibited by Graham, Renfrew Co., Ltd., Bedford Park, Ont.

Best Hackney Mare.

Ophelia's Heiress (imp.) —481—. Exhibited by T. B. Macaulay; E. Watson, Manager, Hudson Heights, Que.

Standard-bred Stallions, foaled previous to January 1st, 1909. Two entries.

1st—Prince Ambrose 68984, bay, foaled 1902; sire, Ambrosal 12146; dam, Hillside Maid 918. Exhibited by J. H. Skuce, Carsonby, Ont.

2nd—Prince Parlin (imp.) —194—, foaled 1906; sire, Alclayone; dam, Maylee. Exhibited by R. Ness & Son, Howick, Que.

Standard-bred Mares, any age. (Age considered.) One entry.

1st—Saucy Lass 100667, foaled 1909; sire, Phonograph 11422; dam, Nettie Larchie 30345. Exhibited by A. Dynes, Ottawa, Ont.

Thoroughbred Stallions, foaled previous to January 1st, 1909, best suited to get Hunters or Saddle Horses. Two entries.

1st—Angler —377— (Vol. 9), foaled 1902; sire, Hindoo (Vol. 9); dam, Alga (Vol. 9). Exhibited by National Bureau of Breeding, Ltd., per W. H. Williams, Pembroke, Ont.

Thoroughbred Mares, foaled previous to January 1st, 1909, best suited to produce Hunters or Saddle Horses.

1st—Royal Legend 33392 (Vol. 9), foaled 1902; sire, Ingolsby (Vol. 9); dam, Royal Una (Vol. 9). Exhibited by W. H. Williams, Pembroke, Ont.

Horses suitable for Hunters, Geldings or Mares, any age, carrying 175 pounds or over, shown under saddle. Eight entries.

1st—Paddy (black gelding), foaled 1905. Exhibited by Hon. Clifford Sifton, Ottawa, Ont.

2nd—Hailstorm (grey gelding), foaled 1905. Exhibited by Hon. Clifford Sifton, Ottawa, Ont.

3rd—The Yukon (bay gelding), foaled 1905. Exhibited by Hon. Clifford Sifton, Ottawa, Ont.

4th—Phenomenon (gray gelding), foaled 1906. Exhibited by Dr. R. E. Webster, Ottawa, Ont.

5th—No Trumps (bay gelding), foaled 1906. Exhibited by Hon. Clifford Sifton, Ottawa, Ont.

Horses suitable for Hunters, Geldings or Mares, any age, carrying less than 175 pounds, shown under saddle. Five entries.

1st—Glenwood (bay gelding), foaled 1903. Exhibited by Hon. Clifford Sifton, Ottawa, Ont.

2nd—Loretta (bay mare), foaled 1903. Exhibited by Dr. R. E. Webster, Ottawa, Ont.

3rd—Mayfair (chestnut mare). Exhibited by C. M. Edwards, Ottawa, Ont.

Ponies (14 hands 1 inch and under), Geldings or Mares, any age or breed. Four entries.

1st—Dot, foaled 1906. Exhibited by A. Dynes, Ottawa, Ont.

2nd—Topsy (blue roan mare). Exhibited by Mrs. George Edd. Stacey, Ottawa, Ont.

3rd—Pansy (imp.) (mare), foaled June, 1907. Exhibited by William Meharey, Russell, Ont.

Heavy Draught Geldings or Mares, shown in single harness. Three entries.

1st—Bess of Langbarns [26229] (28182), brown, foaled May 15th, 1908; sire, Sir Marquis 7790 (13205); dam, Fanny [19043]. Exhibited by Smith & Richardson, Columbus, Ont.

2nd—Royal Princess [26243] (28196), brown, foaled March 15th, 1908; sire, Royal Choice [7846] (13165); dam, Darling of Gateside [21610]. Exhibited by Smith & Richardson, Columbus, Ont.

Toby, foaled 1907. Exhibited by John A. Graham, Britannia Bay, Ont.

Heavy Draught Geldings or Mares, shown in single harness, open to Amateurs only. Two entries.

1st—Rosie Moffat (imp.) [27820], brown, white stripe on face, three white feet, foaled May 20th, 1908; sire, Ardeinersay Prince [13280]; dam, Maggie of Raims [18053]. Exhibited by T. A. Spratt, Billing's Bridge, Ont.

2nd—Myrtle, foaled 1902. Exhibited by John A. Graham, Britannia Bay, Ont.

Heavy Draught Team in Harness, Geldings or Mares. Two entries.

1st—Bess of Langbarns. Royal Princess. Exhibited by Smith & Richardson, Columbus, Ont.
2nd—Toby (see Class 12, Section 1). Fred, foaled 1905. Exhibited by John A. Graham, Britannia Bay, Ont.

CHAMPIONSHIPS.

Clydesdale Stallion, any age.

1st—Baron Kelvin (imp.) [12462] (13991). Exhibited by The Graham, Renfrew Co., Ltd., Bedford Park, Ont.

Canadian-bred Clydesdale Stallion, any age.

1st—Prince Ivory [12442]. Exhibited by Smith & Richardson, Columbus, Ont.

Clydesdale Mare, any age.

1st—Darling of Begg (imp.) [26401]. Exhibited by R. Ness & Son, Howick, Que.

Canadian-bred Clydesdale Mare, any age.

1st—Rosvelva [24119]. Exhibited by T. L. Fairbairn, Billing's Bridge, Ont.

Hackney Stallions, any age.

1st—Terrington Semaphore (imp.) —512— (10906). Exhibited by The Graham, Renfrew Co., Ltd., Bedford Park, Ont.

Hackney Mare, any age.

1st—Ophelia's Heiress (imp.) —481—. Exhibited by T. B. Macaulay; E. Watson, Manager, Hudson Heights, Que.

Horse suitable for Hunter.

1st—Glenwood (bay gelding). Exhibited by Hon. Clifford Sifton, Ottawa, Ont.

GRAND CHAMPIONSHIPS.

Clydesdale Stallion, any age.

1st—Baron Kelvin (imp.) [12462] (13991). Exhibited by The Graham, Renfrew Co., Ltd., Bedford Park, Ont.

Clydesdale Mare, any age.

1st—Darling of Begg (imp.) [26401]. Exhibited by R. Ness & Son, Howick, Que.

SPECIALS.

For the best Clydesdale Stallion shown by a resident of the County of Carleton.

1st—D. G. Boyd, Kars, Ont.

For the best three Clydesdales, any age, got by the same sire.

1st—R. Ness & Son, Howick, Que.

For the best three Hackneys, either one stallion and two mares or two stallions and one mare, any age.

1st—J. R. Thompson, Guelph, Ont.

For ten Pure-bred Horses, any breed or sex, owned by the Exhibitor and shown in the regular classes.

1st—The Graham, Renfrew Co., Ltd., Bedford Park, Ont.
2nd—Smith & Richardson, Columbus, Ont.
3rd—R. Ness & Son, Howick, Que.

BEEF CATTLE.

SHORTHORNS.

Steer, 2 years and under 3. Five entries.

1st, A. Dynes, Ottawa, Ont.; 2nd, 3rd and 5th, A. Armstrong, Fergus, Ont.; 4th, Pritchard Bros., Fergus, Ont.

Steer, 1 year and under 2. Four entries.

1st, A. Dynes, Ottawa, Ont.; 2nd, Pritchard Bros., Fergus, Ont.; 3rd, A. A. Armstrong, Fergus, Ont.

Steer, under 1 year. Five entries.

1st, James Leask, Greenbank; 2nd and 5th, A. A. Armstrong, Fergus; 3rd, E. Brien & Sons, Ridgetown; 4th, Pritchard Bros., Fergus.

Heifer, 2 years and under 3. One entry.

1st, Peter White, Pembroke.

Heifer, 1 year and under 2. Eight entries.

1st, W. R. Elliott & Sons, Guelph; 2nd, Wm. A. Wallace, Kars; 3rd and 4th, W. C. Edwards, Rockland; 5th, Peter White, Pembroke.

Heifer, under 1 year. Six entries.

1st and 3rd, W. R. Elliott & Sons, Guelph; 2nd and 5th, James Leask, Greenbank; 4th, A. A. Armstrong, Fergus.

HEREFORDS.

Steer or Heifer, 2 years and under 3.

1st and 3rd, L. O. Clifford, Oshawa; 2nd, A. A. Armstrong, Fergus.

Steer or Heifer, 1 year and under 2.

1st and 2nd, L. O. Clifford, Oshawa.

Steer or Heifer, under 1 year.

1st, 2nd and 3rd, L. O. Clifford, Oshawa.

Cow or Heifer, 3 years or over.

1st and 2nd, L. O. Clifford, Oshawa.

ABERDEEN-ANGUS AND GALLOWAY.

Steer or Heifer, 1 year and under 2.

1st, Pritchard Bros., Fergus; 2nd, J. Bowman, Guelph; 3rd, A. A. Armstrong, Fergus.

Steer or Heifer, under 1 year.

1st and 2nd, Pritchard Bros., Fergus.

Cow or Heifer, 3 years or over.

1st, Pritchard Bros., Fergus.

GRADES OR CROSSES.

Steer, 2 years and under 3. Seven entries.

1st, 2nd and 3rd, A. A. Armstrong, Fergus; 4th and 5th, A. Dynes, Ottawa.

Steer, 1 year and under 2. Eight entries.

1st, Jas. Leask, Greenbank; 2nd and 4th, A. A. Armstrong, Fergus; 3rd, Pritchard Bros., Fergus; 5th, A. Dynes, Ottawa.

Steer, under 1 year. Four entries.

1st, Pritchard Bros., Fergus; 2nd and 4th, A. A. Armstrong, Fergus; 3rd, A. Dynes, Ottawa.

Heifer, 2 years and under 3. Three entries.

1st, 2nd and 3rd, A. A. Armstrong, Fergus.

Heifer, 1 year and under 2. Six entries.

1st and 3rd, Pritchard Bros., Fergus; 2nd and 4th, A. A. Armstrong, Fergus; 5th, Wm. A. Wallace, Kars.

Heifer, under 1 year. Five entries.

1st and 2nd, A. A. Armstrong, Fergus; 3rd, James Leask, Greenbank; 4th, Pritchard Bros., Fergus; 5th, Wm. A. Wallace, Kars.

PURE BREDS, OR GRADES OR CROSSES.

Steer, under 1 year. One entry.

1st, E. Brien & Sons, Ridgetown.

Heifer, under 1 year. One entry.

1st, Bray & Scott, Beathton.

Three Export Steers. Seven entries.

1st, 3rd and 4th, A. A. Armstrong, Fergus; 2nd and 5th, A. Dynes, Ottawa.

SPECIALS.

Best Grade Steer, sired by a pure bred Shorthorn bull.

1st, Jas. Leask, Greenbank; 2nd, A. A. Armstrong, Fergus; 3rd, Pritchard Bros., Fergus.

Best Beef Animal, pure bred, shown and fitted by a resident of the Counties of Carleton or Russell, outside the City of Ottawa.

1st, W. A. Wallace, Kars.

DRESSED CARCASSES.

1st, 3rd and 5th, A. Dynes, Ottawa; 2nd and 4th, A. A. Armstrong, Fergus.

SHEEP.

COTSWOLDS.

Wether, under 1 year. Eight entries.

1st and 2nd, E. Brien & Sons, Ridgetown; 3rd and 5th, Henry Waters, Guelph; 4th, J. Lloyd Jones, Burford.

Three Wethers, under 1 year. Four entries.

1st and 3rd, E. Brien & Sons, Ridgetown; 2nd, Henry Waters, Guelph.

Ewe, under 1 year. Nine entries.

1st and 3rd, Henry Waters, Guelph; 2nd, J. G. Ross, Jarvis.

Three Ewes, under 1 year. Four entries.

1st, Henry Waters, Guelph; 2nd, J. C. Ross, Jarvis; 3rd, E. Brien & Sons, Ridgetown.

Dressed Carcass, Wether under 1 year. Seven entries.

1st and 2nd, E. Brien & Sons, Ridgetown.

LINCOLNS.

Wether, under 1 year. Six entries.

1st, 2nd and 5th, E. Brien & Sons, Ridgetown; 3rd and 4th, L. Parkinson, Guelph.

Three Wethers, under 1 year. Three entries.

1st, E. Brien & Sons, Ridgetown; 2nd and 3rd, L. Parkinson & Sons, Guelph.

Ewe, under 1 year. Six entries.

1st, 4th and 5th, E. Brien & Sons, Ridgetown; 2nd and 3rd, L. Parkinson & Sons, Guelph.

Three Ewes, under 1 year. Three entries.

1st, E. Brien & Sons, Ridgetown; 2nd, L. Parkinson & Sons, Guelph.

Dressed Carcass, Wether, under 1 year. Two entries.

1st, L. Parkinson & Sons, Guelph; 2nd, E. Brien & Sons, Ridgetown.

LEICESTER.

Wether, under 1 year. Seven entries.

1st, 2nd and 5th, A. & W. Whitelaw, Guelph; 3rd and 4th, John Kelly, Shakespeare.

Three Wethers, under 1 year. Three entries.

1st and 3rd, A. & W. Whitelaw, Guelph; 2nd, John Kelly, Shakespeare.

Ewe, under 1 year. Six entries.

1st, 3rd and 4th, A. & W. Whitelaw, Guelph; 2nd and 5th, E. Brien & Sons, Ridgetown.

Three Ewes, under 1 year. Three entries.

1st and 3rd, A. & W. Whitelaw, Guelph; 2nd, E. Brien & Sons, Ridgetown.

Dressed Carcass, Wether, under 1 year. Four entries.

1st, A. & W. Whitelaw, Guelph; 2nd, John Kelly, Shakespeare.

OXFORDS.

Wether, under 1 year. Five entries.

1st, 2nd and 5th, F. T. Lee, Simcoe; 3rd and 4th, A. A. Armstrong, Fergus.

Three Wethers, under 1 year. Three entries.

1st, F. T. Lee, Simcoe; 2nd, A. A. Armstrong, Fergus.

Ewe, under 1 year. Three entries.

1st, 2nd and 3rd, F. T. Lee, Simcoe.

Three Ewes, under 1 year. Two entries.

1st, F. T. Lee, Simcoe.

Dressed Carcass, Wether, under 1 year. Five entries.

1st, A. A. Armstrong, Fergus; 2nd, F. T. Lee, Simcoe.

SHROPSHIRES.

Wether, under 1 year. Eight entries.

1st, 2nd and 5th, J. & D. J. Campbell, Woodville; 3rd and 4th, J. Lloyd Jones, Burford.

Three Wethers, under 1 year. Four entries.

1st, J. & D. J. Campbell, Woodville; 2nd, J. Lloyd Jones, Burford; 3rd, A. A Armstrong, Fergus.

Ewe, under 1 year. Five entries.

1st, 2nd and 4th, J. & D. J. Campbell, Woodville; 3rd, J. Lloyd Jones, Burford.

Three Ewes, under 1 year. Two entries.

1st, J. & D. J. Campbell, Woodville; 2nd, J. Lloyd Jones, Burford.

Dressed Carcass, Wether, under 1 year. Six entries.

1st, J. & D. J. Campbell, Woodville; 2nd, J. Lloyd Jones, Burford.

SOUTHDOWNS.

Wether, under 1 year. Four entries.

1st and 2nd, J. Lloyd Jones, Burford; 3rd and 4th, George Baker & Son, Simcoe.

Three Wether, under 1 year. Two entries.

1st, J. Lloyd Jones, Burford; 2nd, George Baker & Son, Simcoe.

Ewe, under 1 year. Four entries.

1st, J. Lloyd Jones, Burford; 2nd, George Baker & Son, Simcoe.

Three Ewes, under 1 year. Four entries.

1st, George Baker & Son, Simcoe; 2nd, J. Lloyd Jones, Burford.

Dressed Carcass, Wether, under 1 year. Three entries.

1st and 2nd, Geo. Baker & Son, Simcoe.

DORSET HORNS.

Wether, under 1 year. Three entries.

1st, 2nd and 3rd, R. H. Harding, Thorndale.

Three Wethers, under 1 year. One entry.

1st, R. H. Harding, Thorndale

Ewe, under 1 year. Three entries.

1st, 2nd and 3rd, R. H. Harding, Thorndale.

Three Ewes, under 1 year. One entry.

1st, R. H. Harding, Thorndale.

Dressed Carcass, Wether, under 1 year. Two entries.

1st and 2nd, R. H. Harding, Thorndale.

HAMPSHIRES AND SUFFOLKS.

Wether, under 1 year. Seven entries.

1st and 2nd, John Kelly, Shakespeare; 3rd, J. Bowman, Guelph.

Ewe, under 1 year. Six entries.

1st, 2nd and 3rd, John Kelly, Shakespeare; 4th and 5th, J. Bowman, Guelph.

Three Ewes, under 1 year. Two entries.

1st, John Kelly, Shakespeare; 2nd, J. Bowman, Guelph.

Dressed Carcass, Wether, under 1 year. Five entries.

1st, John Kelly, Shakespeare; 2nd, J. Bowman, Guelph.

LONG-WOOLED GRADE OR CROSS.

Wether, under 1 year. Thirteen entries.

1st, L. Parkinson & Sons, Guelph; 2nd and 5th, John Kelly, Shakespeare; 3rd, E. Brien & Sons, Ridgetown; 4th, A. A. Armstrong, Fergus.

Three Wethers, under 1 year. Six entries.

1st, L. Parkinson & Sons, Guelph; 2nd, John Kelly, Shakespeare; 3rd, E. Brien & Sons, Ridgetown; 4th, A. W. Whilelan, Guelph; 5th, A. A. Armstrong, Fergus.

Ewe, under 1 year. Thirteen entries.

1st, A. & W. Whitelaw, Guelph; 2nd, John Kelly, Shakespeare; 3rd and 5th, E. Brien & Sons, Ridgetown; 4th, A. A. Armstrong, Fergus.

Three Ewes, under 1 year. Six entries.

1st, A. & W. Whitelaw, Guelph; 2nd, E. Brien & Sons, Ridgetown; 3rd, A. A. Armstrong, Fergus.

Dressed Carcass, Wether, under 1 year. Nine entries.

1st and 2nd, A. A. Armstrong, Fergus.

SHORT-WOOLED GRADE OR CROSS.

Wether, under 1 year. Eleven entries.

1st and 4th, J. & D. J. Campbell, Woodville; 2nd and 5th, George Baker & Son, Simcoe; 3rd, J. Lloyd Jones, Burford.

Three Wethers, under 1 year. Five entries.

1st, J. & D. J. Campbell, Woodville; 2nd, George Baker & Son, Simcoe; 3rd, J. Lloyd Jones, Burford; 4th, A. A. Armstrong, Fergus.

Ewe, under 1 year. Six entries.

1st and 4th, J. Lloyd Jones, Burford; 2nd, 3rd and 5th, J. & D. J. Campbell, Woodville.

Three Ewes, under 1 year. Two entries.

1st, J. & D. J. Campbell, Woodville; 2nd, J. Lloyd Jones, Burford.

Dressed Carcass, Wether, under 1 year. Nine entries.

1st, J. & D. J. Campbell, Woodville; 2nd, George Baker & Son, Simcoe.

SPECIALS.

Best sheep shown by a resident of the County of Carleton.—Geo. R. Bradley, Carsonby.

SWINE.

YORKSHIRES.

Barrow, 6 months and under 9. Four entries.

1st and 4th, J. E. Brethour & Nephews, Burford; 2nd and 3rd, Jos. Featherston & Son, Streetsville.

Barrow, under 6 months. Eight entries.

1st and 2nd, A. Dynes, Ottawa; 3rd, 4th and 5th, J. E. Brethour & Nephews, Burford.

Sow, 6 months and under 9. Eight entries.

1st, 2nd, 3rd and 4th, J. E. Brethour & Nephews, Burford; 5th, Jos. Featherston & Son, Streetsville.

Sow, under 6 months. Eight entries.

1st, 2nd and 4th, J. E. Brethour & Nephews, Burford; 3rd, Jos. Featherston & Son, Streetsville; 5th, A. Dynes, Ottawa.

BERKSHIRES.

Barrow, 6 months and under 9. Five entries.

1st, 2nd and 4th, E. Brien & Sons, Ridgetown; 3rd, John Kelly, Shakespeare; 5th, E. W. Booth, City View.

Barrow, under 6 months. Five entries.

1st and 2nd, E. Brien & Sons, Ridgetown; 3rd and 4th, E. W. Booth, City View.

Sow, 6 months and under 9. Six entries.

1st, E. Brien & Sons, Ridgetown; 2nd, John Kelly, Shakespeare; 3rd, Lloyd Gosnell, Ridgetown; 4th, E. W. Booth, City View.

Sow, under 6 months. Seven entries.

1st and 2nd, E. Brien & Sons, Ridgetown; 3rd and 5th, E. W. Booth, City View; 4th, Lloyd Gosnell, Ridgetown.

Best Berkshire, exhibited by an Amateur. Three entries.

1st and 3rd, Lloyd Gosnell, Ridgetown; 2nd, E. W. Booth, City View.

TAMWORTHS.

Barrow, 6 months and under 9. Three entries.

1st and 2nd, J. E. Brethour & Nephews, Burford; 3rd, A. Dynes, Ottawa.

Barrow, under 6 months. Four entries.

1st and 2nd, J. E. Brethour & Nephews, Burford; 3rd and 4th, A. Dynes, Ottawa.

Sow, 6 months and under 9. Four entries.

1st, 2nd, 3rd and 4th, A. Dynes, Ottawa.

Sow, under 6 months. Five entries.

1st and 2nd, A. Dynes, Ottawa; 3rd, 4th and 5th, R. Reid & Co., Ottawa.

GRADE OR CROSS.

Barrow, 6 months and under 9. Six entries.

1st, J. E. Brethour & Nephews, Burford; 2nd, Pritchard Bros., Fergus; 3rd, Jos. Featherston & Son, Streetsville; 4th, Bray & Scott, Beathton; 5th, Bray & Scott, Beathton.

Barrow, under 6 months. Eight entries.

1st, J. E. Brethour & Nephews, Burford; 2nd, A. Dynes, Ottawa; 3rd, E. Brien & Son, Ridgetown; 4th, Jos. Featherston & Sons, Streetsville.

Sow, 6 months and under 9. Six entries,

1st, Bray & Scott, Beathton; 2nd, George Williams, Erindale; 3rd, Jos. Featherston & Son, Streetsville; 4th, A. Dynes, Ottawa.

Sow, under 6 months. Eight entries.

1st and 2nd, J. E. Brethour & Nephews, Burford; 3rd, E. Brien & Sons, Ridgetown; 4th, Pritchard Bros., Fergus; 5th, A. Dynes, Ottawa.

Barrow or Sow, shown by an Amateur. Four entries.

1st, Bray & Scott, Beathton; 2nd, Pritchard Bros., Fergus.

EXPORT BACON HOGS.

Three Pure-breds. Sixteen entries.

1st, Jos. Featherston & Son, Streetsville; 2nd, 5th and 8th, J. E. Brethour & Nephews, Burford; 3rd and ,4th, A. Dynes, Ottawa; 6th, D. Barr, Jr., Renfrew; 7th, Jos. Featherston & Son, Streetsville; 9th, A. H. Foster, Twin, Elm.

Three Grades or Crosses. Fourteen Entries.

1st—Jos. Featherston & Son, Streetsville; 2nd and 4th, J. E. Brethour & Nephews, Burford; 3rd, J. Ferguson, Dalmeny; 5th and 6th, A. Dynes, Ottawa.

Sweepstake, Three Best Export Bacon Hogs, any breed.

1st, Jos. Featherston & Son, Streetsville.

DRESSED CARCASSES.

Three Pure-bred Bacon Hogs. Fifteen Entries.

1st, David Barr, Jr., Renfrew; 2nd and 3rd, A. Dynes, Ottawa; 4th, J. E. Brethour & Nephews, Burford; 5th, 6th and 7th, A. H. Foster, Twin Elm.

Three Grades or Crosses, Bacon Hogs. Fourteen Entries.

1st and 2nd, David Barr, Jr., Renfrew; 3rd, Pritchard Bros., Fergus; 4th, Jos. Featherston & Son, Streetsville.

Sweepstakes, Three Best Carcasses, any breed.

1st, D. Barr, Jr., Renfrew.

SPECIALS.

For the Best Three Hogs, Shown by a Resident of the County of Carleton.

1st, A. Dynes, Ottawa.

DAIRY TEST AT EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW.

Name of Animal and Exhibitor.	Lbs. Milk	Per cent, Fat	Points for Fat	Points for Solids not Fat	Points for Lactation	Total Points
Class 35, Sec. 1—Ayrshire Cow, 48 months and over.						
1st, Barcheskie Luck Girl, R. R. Ness, Howick, Que	187.	3.8	177.65	51.612	1.5	230.762
2nd, Dairy Maid, R. R. Ness, Howick, Que	163.8	4.3	176.085	46.437		222.522
3rd, White Floss, A. S. Turner & Sons, Ryckman's Corners	170.5	4.2	179.25	49.6999	2.	220.72495
4th, Snowdrop of Hickory Hill, N. Dyment, Clappison's Corners	186.5	3.6	167.85	47.3337	1.	216.1837
Class 35, Sec. 2—Ayrshire Cow, 36 months and under 48.						
1st, Jemima of Springbank 2nd, A. S. Turner & Sons, Ryckman's Corners	158.3	3.3	130.597	43.6908		174.2883
2nd, Stonehouse Maggie, Hector Gordon. Howick, Que	117.8	3.9	114.8550	33.819		148.6740
3rd, Burnside Lucky Girl 2nd, R. R. Ness, Howick, Que	127.5	3.5	111.5625	34.960	2.	148.5230
4th, Morton Mains Bonny Nancy, R. R. Ness, Howick, Que	102.4	4.4	112.64	28.11664		140.75664
Class 35, Sec. 3—Ayrshire Heifer, under 36 months.						
1st, Violet of Hillview 2nd, N. Dyment, Clappison's Corners	113.	3.9	110.75	30.778	10.	151.3278
2nd, Burnside Cherry Queen, R. R. Ness, Howick, Que	106.8	4.2	112.14	30.0535	1.5	143.69352
3rd, Lessnessock Flossie, D. T. Ness, Howick, Que	97.8	4.2	102.69	26.787	3.8	133.277
4th, Blossom of Springbank, A. S Turner & Sons, Ryckman's Corners	87.3	4.3	93.8475	24.0948	4.6	122.5423
Class 36, Sec. 1—Holstein Cow, 48 months and over.						
1st, Maud Dekoe, T. A. Spratt, Billing's Bridge	276.3	3.6	248.67	67.2237		315.8937
2nd, Rhode's Queen, N. Sangster, Ormstown, Que	302.8	3.	227.1	66.222	.5	293.822
3rd, Lady Waldorf deKol, A. C. Hardy, Brockville	218.	4.	218.	48.984		266.984
4th, Daisy Belle Jewel 4th, R. Dowler, Ottawa South	235.5	3.3	194.2875	62.525	1.	257.81275
Class 36, Sec. 2—Holstein Cow, 36 months and under 48.						
1st, Dot of Ormstown, N. Sangster, Ormstown, Que	177.1	3.8	168.245	46,498		214.743
2nd, Rhode's Queen 2nd, N. Sangster, Ormstown, Que	176.3	3,1	136.6325	44.21604		180.84854
Class 36, Sec. 3—Holstein Heifer, under 36 months.						
1st, Belle Model, Johanna 2nd, A. C. Hardy, Brockville	183.	3.8	173.85	48.861		222.711
2nd, Oakville Elsie Johanna, G. H. Manhard, Manhard	187.8	3.4	159.63	45.4662		205.962
3rd, Edna Duchess Hengerbeld, N. Sangster, Ormstown, Que	178.9	3.	134.175	46.1026	1.	181.2775
4th, Rhodes Queen Princess, N. Sangster, Ormstown, Que	137.7	3.	103.275	33.213		136.488

Class 37, Sec. 1—Shorthorn Cow, 48 months and over.						
1st, Dairy Maid, A. H. Foster, Twin Elm	141.1	3.4	119.935	38.81661	....	158.75161
2nd, Lady Morning Glory, A. H. Foster, Twin Elm	107.2	3.6	96.48	29.4585	3.6	129.5385
Class 37, Sec. 2—Shorthorn Cow, 36 months and under 48.						
1st, Dairy Queen, A. H. Foster, Twin Elm	134.6	3.3	111.045	34.9317	....	145.9767
2nd, Gracey Gwynne 4th, John Kelly, Shakespeare	128.7	3.3	106.1775	33.009	.5	139.6865
3rd, Dairy Maid 2nd, H. H. Foster, Twin Elm	92.5	4.	92.15	24.9472	....	117.44725
Class 37, Sec. 3—Shorthorn Heifer, under 36 months.						
1st, Lady Morning Glory 2nd, A. H. Foster, Twin Elm	107.2	3.6	96.48	29.4585	3.6	129.5385
Class 39, Sec. 1—Jersey Cow, 48 months and over.						
2nd, Queen Sis, R. A. Heron, Billings Bridge	74.5	5.7	106.1625	21.411	....	127.57351
Class 39, Sec. 2—Jersey Cow, 36 months and under 48.						
1st, Marjory of Renfrew, John D. Ellis, Renfrew	117.2	4.	117.2	29.72664	....	146.92664
Class 40, Sec. 1—Grade Cow, 48 months and over						
1st, Bonnie, R. A. Heron, Billing's Bridge	213.5	3.4	181.475	54.86085	....	236.33585
2nd, Lunette No. 73, Wm. Owens, Montreal, Que	169.2	4.1	173.43	44.973	....	218.403
3rd, Springbrook Miss Arthur, McMillan & Leggatt, Trout River	170.2	4.	170.2	48.668	....	216.868
4th, Burnside Delight, R. R. Ness, Howick, Que	158.5	3.9	154.5375	40.2748	3.	197.81235
Class 40, Sec. 2—Grade Cow, 36 months and under 48.						
1st, Alice, R. A. Heron, Billing's Bridge	187.7	4.4	196.57	47.283	.8	243.653
2nd, Maggie B., T. A. Spratt, Billing's Bridge	191.7	3.1	148.567	47.5	....	196.0678
3rd, Flo, R. A. Heron, Billing's Bridge	133.7	3.5	116.9875	37.8638	....	154.85134
4th Burnside Spottie, R. R. Ness, Howick, Que	148.3	4.1	152.007	42.087	....	194.0955
Class 40, Sec. 3—Grade Heifer, under 36 months.						
1st, Ridgemont, R. A. Heron, Billing's Bridge	154.8	3.6	139.32	39.05604	5.8	184.17604
2nd, Little Wonder, A. H. Foster, Twin Elm	119.1	4.2	125.055	30.577	....	155.632

SEEDS.

Fall Wheat. Eight Entries.

1st, Duncan Carmichael, West Lorne.
2nd, S. J. Woods, Metcalfe.
3rd, Geo. Baker, Simcoe.
4th, Mrs. W. E. Hopkins, Cummings Bridge.

Spring Wheat. Five Entries.

1st, S. J. Woods, Metcalfe.
2nd, D. Cumming, Russell.
3rd, D. B. Stewart, Renfrew.
4th, Peter Wilson, Cobden.

Banner Oats. Five Entries.

1st, Geo. Boyce, Merivale.
2nd, Geo. R. Bradley, Carsonby.
3rd, S. G. Gourlay, Diamond.
4th, S. J. Woods, Metcalfe.

Oats, any other variety, White. Eleven Entries.

1st, Andrew Schmidt, Mildmay.
2nd, Duncan Carmichael, West Lorne.
3rd, N. P. Schmidt, Mildmay.
4th, D. Cumming, Russell.

Barley, six-rowed. Seven Entries.

1st, Peter Wilson, Cobden.
2nd, Andrew Schmidt, Mildmay.
3rd, Duncan Carmichael, West Lorne.
4th, N. P. Schmidt, Mildmay.

Buckwheat. Two Entries.

1st, S. J. Woods, Metcalfe.
2nd, Geo. R. Bradley, Carsonby.

Field Beans. Four Entries.

1st, S. J. Woods, Metcalfe.
2nd, E. L. Tucker, Clarence.
3rd, Lloyd Gosnell, Ridgetown.
4th, E. Brien & Sons, Ridgetown.

Small Field Peas. Three Entries.

1st, Jas. W. Edgar, Gorrie.
2nd, S. J. Woods, Metcalfe.
3rd, S. Cumming, Russell.

Potatoes, Long White Type. Four Entries.

1st, Wm. Naismith, Falkenburg Sta.
2nd, Jas. Snetsinger, Eamer's Corners.

Potatoes, Round White Type. Seven Entries.

1st, Wm. Naismith, Falkenburg Sta.
2nd, Andrew Schmidt, Mildmay.
3rd, S. J. Woods, Metcalfe.
4th, Geo. R. Bradley, Carsonby.

Potatoes, Rose Type. Three Entries.

1st, Wm. Naismith, Falkenburg Sta.
2nd, Geo. R. Bradley, Carsonby.
3rd, Jas. Snetsinger, Eamer's Corners.

Corn, any Eight-rowed Variety, Flint. Eight Entries.

1st, Leonard D. Hankinson, Aylmer W.
2nd, F. A. Smith, Grovesend.
3rd, R. Simzer, Vancamps.
4th, J. A. Fletcher, Valetta.

Corn, any Twelve-rowed Variety, Flint. Nine Entries.

1st, L. D. Hankinson, Aylmer West.
2nd, Duncan Carmichael, West Lorne.
3rd, F. A. Smith, Grovesend.
4th, J. A. Fletcher, Valetta.

Corn, best Early Dent Variety. Seven Entries.

1st, L. D. Hankinson, Aylmer West.
2nd, E. J. Mullins, Woodslee.
3rd, F. A. Smith, Grovesend.
4th, Walter Thompson, Dresden.

Corn, best Early Yellow Dent Variety. Six Entries.

1st, L. D. Hankinson, Aylmer West.
2nd, F. A. Smith, Grovesend.
3rd, W. A. Barnett, Harrow.
4th, J. A. Fletcher, Valetta.

Timothy. Six Entries.

1st, D. Cumming, Russell.
2nd, E. L. Tucker, Clarence.
3rd, E. Brien & Sons, Ridgetown.
4th, J. A. Fletcher, Valetta.

Red Clover. Four Entries.

1st, J. A. Fletcher, Valetta.
2nd, J. Featherston & Son, Streetsville.
3rd, Geo. Baker, Simcoe.

Alsike. Two Entries.

1st, J. A. Fletcher, Valetta.
2nd, Geo. Baker, Simcoe.

SPECIAL.

Best Exhibit of White Oats, any variety, produced in 1911

1st, Geo. Boyce, Merivale.

POULTRY.

List gives number of entries and awards in each section. For Post Office address of exhibitor, see page 335.

LIGHT BRAHMAS.

Cocks, 4.—1st, Collins & Cornish; 2nd, P. H. Sauve; 3rd, Ernest Latour.
Hens, 9.—1st. 2nd and 3rd, P. H. Sauve.
Cockerels, 4.—1st and 2nd, P. H. Sauve; 3rd, Collins & Cornish.
Pullets, 7.—1st and 3rd, P. H. Sauve; 2nd, P. H. Sauve.

DARK BRAHMAS.

Cocks, 3.—1st, C. H. Wilson; 2nd, P. A. McIntosh; 3rd, J. Snetsinger.
Hens, 4.—1st and 2nd, C. H. Wilson; 3rd, J. Snetzinger.
Cockerels, 4.—1st, J. Snetsinger; 2nd, Pt. Fortune Poultry Yards; 3rd, P. A McIntosh.
Pullets, 4.—1st and 2nd, C. H. Wilson; 3rd, J. Snetsinger.

BUFF COCHINS.

Cocks, 6.—1st and 3rd, Wm. Holliday; 2nd, Deverell Bros.
Hens, 8.—1st, Deverell Bros.; 2nd, Jas. H. Saunders; 3rd, Wm. Holliday.
Cockerels, 3.—1st, Wm. Holliday; 2nd and 3rd, Deverell Bros.
Pullets, 4.—1st and 2nd, Wm. Holliday; 3rd, Deverell Bros.

PARTRIDGE COCHINS.

Cocks, 2.—1st, Wm. Holliday; 2nd, Wm. Moore.
Hens, 2.—1st, Wm. Holliday; 2nd, Wm. Moore.
Cockerels, 1.—1st, Wm. Holliday.
Pullets, 1.—1st, Wm. Holliday.

BLACK COCHINS.

Cocks, 3.—1st, 2nd and 3rd, Wm. Holliday.
Hens, 3.—1st, 2nd and 3rd, Wm. Holliday.
Cockerels, 2.—1st and 2nd, Wm. Holliday.
Pullets, 3.—1st, 2nd and 3rd, Wm. Holliday.

WHITE COCHINS.

Cocks, 2.—1st and 2nd, Wm. Holliday.
Hens, 5.—1st and 2nd, G. & J. Bogue; 3rd, Wm. Holliday.
Cockerels, 4.—1st, J. H. Warrington; 2nd, D. Bogue; 3rd, Wm. Holliday.
Pullets, 5.—1st, J. H. Warrington; 2nd, Wm. Holliday; 3rd, D. Bogue.

LANGSHANS.

Cocks, 2.—1st and 2nd, R. McCurdy.
Hens, 2.—1st and 2nd, R. McCurdy.
Cockerels, 2.—1st and 2nd, R. McCurdy.
Pullets, 2.—1st and 2nd, R. McCurdy.

BARRED PLYMOUTH ROCKS.

Cocks, 17.—1st, J. Pringle; 2nd, Chas. Hall & Son; 3rd, Laframboise & Galand.

Hens, 16.—1st, J. Pringle; 2nd and 3rd, Laframboise & Galand; 4th and 5th, D. B. Alexander.

Cockerels, 29.—1st and 3rd, J. Pringle; 2nd, F. A. James; 4th, Chas. Hall & Son, 5th, D. B. Alexander.

Pullets, 19.—1st, F. A. James; 2nd and 3rd, J. Pringle; 4th, Chas. Hall & Son.

WHITE PLYMOUTH ROCKS.

Cocks, 10.—1st, G. Robertson; 2nd, Fred. W. King; 3rd, Grose & Kelly.
Hens, 11.—1st, 2nd and 3rd, G. Robertson.
Cockerels, 12.—1st, 2nd and 3rd, G. Robertson; 4th, W. J. Craig.
Pullets, 14.—1st, 2nd and 4th, G. Robertson; 3rd, W. J. Craig.

BUFF PLYMOUTH ROCKS.

Cocks, 5.—1st, Henderson & Billings; 2nd and 3rd, McCaffrey Bros.

Hens, 6.—1st, Henderson & Billings; 2nd, Hintonburg Poultry Yards; 3rd, McCaffrey Bros.

Cockerels, 7.—1st, Hintonburg Poultry Yards; 2nd, McCaffrey Bros.; 3rd, J. W. Lawson.

Pullets, 9.—1st, Henderson & Billings; 2nd and 3rd, McCaffrey Bros.

A. O. V. PLYMOUTH ROCKS.

Cocks, 3.—1st, A. McBride; 2nd, R. E. Blakeley, Ottawa; 3rd, Hintonburg Poultry Yards.

Hens, 4.—1st, Wallace Blakeley; 2nd, R. E. Blakeley; 3rd, Hintonburg Poultry Yards.

Cockerels, 3.—1st, R. E. Blakeley; 2nd, Wallace Blakeley; 3rd, A. McBride.

Pullets, 2.—1st, A. McBride; 2nd, R. E. Blakeley.

GOLDEN WYANDOTTES.

Cocks, 3.—1st, R. Patterson; 2nd and 3rd, Becker & Son.
Hens, 4.—1st, R. Patterson; 2nd Peter Wilson.
Cockerels, 5.—1st, G. Higman, Sr.; 2nd, R. Patterson, Guelph; 3rd, Peter Wilson.
Pullets, 5.—1st and 3rd, G. Higman, Sr.; 2nd, R. Patterson.

SILVER WYANDOTTES.

Cocks, 4.—1st and 2nd, Hintonburg Poultry Yards.
Hens, 6.—1st, 2nd and 3rd, Hintonburg Poultry Yards.
Cockerels, 6.—1st, 2nd and 3rd, Hintonburg Poultry Yards.
Pullets, 7.—1st and 2nd, Hintonburg Poultry Yards.

BUFF WYANDOTTES.

Cocks, 5.—1st and 2nd, C. Allison; 3rd, J. Mason & Son.
Hens, 6.—1st and 3rd, C. Allison; 2nd, R. Patterson.
Cockerels, 4.—1st, C. Allison; 2nd and 3rd, J. Mason & Son.
Pullets, 6.—1st, 2nd and 3rd, J. Mason & Son.

WHITE WYANDOTTES.

Cocks, 9.—1st, Wm. Arnold; 2nd, G. Higman, Sr.; 3rd, C. G. Shaw.

Hens, 6.—1st, C. G. Shaw; 2nd, G. Higman, Sr.; 3rd Wm. Arnold.

Cockerels, 13.—1st, C. G. Shaw; 2nd, G. Higman, Sr.; 3rd, Mrs. W. Croshaw; 4th, Wm. Arnold.

Pullets, 12.—1st, 3rd and 4th, C. G. Shaw; 2nd, Wm. Arnold.

PARTRIDGE WYANDOTTES.

Cocks, 5.—1st, 2nd and 3rd, Adams Bros.

Hens, 4.—1st, 2nd and 3rd, Adams Bros.

Cockerels, 4.—1st, 2nd and 3rd, Adams Bros.

Pullets, 4.—1st, 2nd and 3rd, Adams Bros.

COLUMBIAN WYANDOTTES.

Cocks, 8.—1st, S. J. Schelly; 2nd and 3rd, G. F. Wadsworth.

Hens, 6.—1st, 2nd and 3rd, G. F. Wadsworth.

Cockerels, 9.—1st and 3rd, G. F. Wadsworth; 2nd, S. J. Schelly.

Pullets, 6.—1st, 2nd and 3rd, G. F. Wadsworth.

BLACK WYANDOTTES.

Cocks, 2.—1st, Grose & Kelly; 2nd, P. A. McIntosh.

Hens, 7.—1st, Grose & Kelly; 2nd, P. A. McIntosh; 3rd, M. A. Lathey.

Cockerels, 5.—1st, Grose & Kelly; 2nd, Hintonburg Poultry Yards; 3rd, J. H. Warrington.

Pullets, 6.—1st, Grose & Kelly; 2nd and 3rd, A. & T. Readwin.

A. O. V. WYANDOTTES.

Cocks, 2.—1st and 2nd, R. Patterson.

Hens.—1st, 2nd and 3rd, R. Patterson.

Cockerels, 2.—1st and 2nd, R. Patterson.

Pullets, 3.—1st, 2nd and 3rd, R. Patterson.

BLACK JAVAS.

Cocks, 3.—1st, P. A. McIntosh; 2nd, J. H. Warrington; 3rd, Point Fortune Poultry Yards.

Hens, 3.—1st, J. H. Warrington; 2nd, Point Fortune Poultry Yards; 3rd, P. A. McIntosh.

Cockerels, 3.—1st, Hintonburg Poultry Yards; 2nd, Point Fortune Poultry Yards; 3rd, J. H. Warrington.

Pullets, 3.—1st, Hintonburg Poultry Yards; 2nd, J. H. Warrington.

MOTTLED JAVAS.

Cocks, 1.—1st, G. & J. Bogue.

Hens, 2.—1st, G. & J. Bogue; 2nd, J. H. Warrington.

Cockerels, 1.—1st, J. H. Warrington.

R. C. RHODE ISLAND REDS.

Cocks, 5.—1st. Hintonburg Poultry Yards; 2nd, C. Vogt; 3rd, H. H. Dowton.

Hens, 8.—1st, Hintonburg Poultry Yards; 2nd, C. Vogt; 3rd, Jno. Gill.

Cockerels, 7.—1st, Hintonburg Poultry Yards; 2nd and 3rd, H. H. Dowton.

Pullets, 9.—1st, C. Vogt; 2nd, Jno. Gill; 3rd, Hintonburg Poultry Yards.

S. C. RHODE ISLAND REDS.

Cocks, 8.—1st, C. Vogt; 2nd, Hintonburg Poultry Yards; 3rd, A. Grimes.

Hens, 10.—1st, C. Vogt; 2nd, S. M. Walker; 3rd, Hintonburg Poultry Yards.

Cockerels, 13.—1st and 3rd, Hintonburg Poultry Yards; 2nd, Gunn, Langlois & Co.; 4th, S. M. Walker.

Pullets, 10.—1st, C. Vogt; 2nd, Gunn Langlois & Co.; 3rd, Hintonburg Poultry Yards.

B. B. RED GAMES.

Cocks, 4.—1st, W. Barber; 2nd, J. Lawson; 3rd, P. A. McIntosh.
Hens, 5.—1st, W. Barber; 2nd, J. Lawson; 3rd, P. A. McIntosh.
Cockerels, 3.—1st and 2nd, J. Lawson.
Pullets, 7.—1st, W. Barber; 2nd and 3rd, J. Lawson.

BROWN RED GAMES.

Cocks, 2.—1st and 2nd, W. Barber.
Hens, 2.—1st and 2nd, W. Barber.
Cockerels, 2.—1st and 2nd, W. Barber.
Pullets, 7.—1st and 2nd, W. Barber.

DUCKWING GAMES.

Cocks, 2.—1st and 2nd, W. Barber.
Hens, 2.—1st and 2nd, W. Barber.
Cockerels, 2.—1st and 2nd, W. Barber.
Pullets, 2.—1st and 2nd, W. Barber.

PYLE GAMES.

Cocks, 3.—1st and 2nd, P. A. McIntosh.
Hens, 6.—1st and 2nd, W. Barber; 3rd, P. A. McIntosh.
Cockerels, 5.—1st and 3rd, W. Barber; 2nd, P. A. McIntosh.
Pullets, 5.—1st, P. A. McIntosh; 2nd and 3rd, W. Barber.

C. INDIAN (LACED) GAMES.

Cocks, 8.—1st and 2nd, W. Casey; 3rd, J. Pritchard.
Hens, 9.—1st and 2nd, W. Casey; 3rd, Chas. La Rose.
Cockerels, 8.—1st, W. Casey; 2nd and 3rd, J. Pritchard.
Pullets, 7.—1st, W. Casey; 2nd, J. Pritchard; 3rd, Chas. LaRose.

A. O. S. V., OR W. INDIAN GAMES.

Cocks, 3.—1st, J. H. Warrington; 2nd, W. Barber; 3rd, Point Fortune Poultry Yards.
Hens, 4.—1st and 2nd, W. Barber; 3rd, Point Fortune Poultry Yards.
Cockerels, 2.—1st, Point Fortune Poultry Yards; 2nd, J. H. Warrington.
Pullets, 3.—1st, W. Barber.

OLD ENGLISH OR PIT GAMES.

Cocks, 6.—1st and 2nd, F. Rock; 3rd, G. Craig.
Hens, 9.—1st, G. Craig; 2nd, E. H. Benjamin & Co.; 3rd, F. Rock.
Cockerels, 7.—1st and 2nd, F. Rock; 3rd, G. Craig.
Pullets, 11.—1st and 2nd, W. Kingsley; 3rd, F. Rock.

S. C. WHITE LEGHORNS.

Cocks, 13.—1st and 4th, W. J. Bullock; 2nd, D. McKellar; 3rd, S. Crouch.
Hens, 24.—1st, S. Crouch; 2nd, 4th and 5th, D. McKellar; 3rd, W. J. Bullock.
Cockerels, 20.—1st, 3rd and 5th, W. J. Bullock; 2nd and 4th, D. McKellar.
Pullets, 20.—1st, S. Crouch; 2nd, 3rd and 5th, W. J. Bullock; 4th, D. McKellar.

S. C. BROWN LEGHORNS.

Cocks, 9.—1st and 2nd, H. F. Becker; 3rd, M. R. Hoover.
Hens, 8.—1st and 3rd, H. F. Becker; 2nd, Collins & Cornish.
Cockerels, 9.—1st and 2nd, H. F. Becker; 3rd, Henderson & Billings.
Pullets, 7.—1st, K. K. McLeod; 2nd, H. F. Becker; 3rd, Collins & Cornish.

S. C. BLACK LEGHORNS.

Cocks, 5.—1st, E. Robinson; 2nd, Wm. Osborne; 3rd, Henderson & Billings.
Hens, 10.—1st, Wm. Osborne; 2nd, W. Barber; 3rd, Henderson & Billings.
Cockerels, 10.—1st and 2nd, Henderson & Billings; 3rd, Wm. Osborne.
Pullets, 11.—1st and 2nd, Henderson & Billings; 3rd, Wm. Osborne.

S. C. BUFF LEGHORNS.

Cocks, 9.—1st, Henderson & Billings; 2nd, Gillespie Bros.; 3rd, D. B. Alexander.
Hens, 10.—1st and 2nd, Henderson & Billings; 3rd, J. Snetsinger.
Cockerels, 9.—1st and 3rd, Henderson & Billings; 2nd, Gillespie Bros.
Pullets, 11.—1st, D. B. Alexander; 2nd, Gillespie Bros.; 3rd, Henderson & Billings.

R. C. BROWN LEGHORNS.

Cocks, 4.—1st and 2nd, Henderson & Billings; 3rd, C. H. Wilson.
Hens, 4.—1st and 3rd, Henderson & Billings; 2nd, P. A. McIntosh.
Cockerels, 5.—1st and 2nd, Henderson & Billings; 3rd, C. H. Wilson.
Pullets, 4.—1st and 2nd, Henderson & Billings; 3rd, C. H. Wilson.

A. O. S. V., R. C. LEGHORNS.

Cocks, 4.—1st, W. J. Vrooman; 2nd, C. H. Wilson; 3rd, M. R. Hoover.
Hens, 4.—1st, W. J. Vrooman; 2nd, C. H. Wilson; 3rd, M. R. Hoover.
Cockerels, 4.—1st, M. R. Hoover; 2nd, W. J. Vrooman; 3rd, C. H. Wilson.
Pullets, 7.—1st, M. R. Hoover; 2nd, C. H. Wilson; 3rd, W. J. Vrooman.

SPANISH.

Cocks, 3.—1st, P. A. McIntosh; 2nd, J. Snetsinger.
Hens, 5.—1st and 3rd, P. A. McIntosh; 2nd, G. & J. Bogue.
Cockerels, 3.—1st, J. H. Warrington; 2nd and 3rd, G. & J. Bogue.
Pullets, 3.—1st and 2nd, G. & J. Bogue.

ANCONAS.

Cocks, 1.—1st, L. Cabana.
Hens, 2.—1st and 2nd, L. Cabana.
Cockerels, 2.—1st, J. Baptie; 2nd, L. Cabana.
Pullets, 6.—1st, J. Baptie; 2nd, L. Cabana; 3rd, Wm. A. Kyle.

ANDALUSIANS.

Cocks, 10.—1st, E. S. Baker; 2nd and 3rd, Chas. LaRose.
Hens, 13.—1st, 2nd and 3rd, Chas. La Rose.
Cockerels, 13.—1st and 2nd, Chas. LaRose; 3rd, A. A. Casselman.
Pullets, 12.—1st and 3rd, Chas. LaRose; 2nd, E. S. Baker.

S. C. BLACK MINORCAS.

Cocks, 10.—1st, Hintonburg Poultry Yards; 2nd and 3rd, Wm. Ellis.
Hens, 12.—1st, Wm. Ellis; 2nd, 3rd and 4th, L. V. Zavitz.
Cockerels, 17.—1st, 2nd, 4th and 5th, L. V. Zavitz; 3rd, Hintonburg Poultry Yards.
Pullets, 16.—1st, Hintonburg Poultry Yards; 2nd and 3rd, L. V. Zavitz; 4th, Wm. Ellis.

R. C. BLACK MINORCAS.

Cocks, 6.—1st, Wm. Ellis; 2nd, L. V. Zavitz; 3rd, R. Swartout.
Hens, 9.—1st, J. H. Warrington; 2nd, Wm. Ellis; 3rd, R. Swartout.
Cockerels, 8.—1st, L. V. Zavitz; 2nd and 3rd, R. Swartout.
Pullets, 9.—1st and 2nd, L. V. Zavitz; 3rd, Wm. Ellis.

WHITE MINORCAS.

Cocks, 4.—1st, E. A. Bock; 2nd, P. A. McIntosh; 3rd, J. Snetsinger.
Hens, 5.—1st and 2nd, E. A. Bock; 3rd, W. M. Osborne.
Cockerels, 5.—1st, E. A. Bock; 2nd, J. A. & M. Benson; 3rd, J. Snetsinger.
Pullets, 4.—1st and 2nd, E. A. Bock; 3rd, J. Snetsinger.

BUFF ORPINGTONS.

Cocks, 6.—1st and 3rd, A. W. E. Hellyer; 2nd, E. C. McDougall.
Hens, 7.—1st and 2nd, A. W. E. Hellyer; 3rd, E. C. McDougall.
Cockerels, 17.—1st, A. W. E. Hellyer; 2nd and 4th, A. W. E. Hellyer; 3rd, E. C. McDougall.
Pullets, 13.—1st, 3rd and 4th, A. W. Hellyer; 2nd, E. C. McDougall.

WHITE ORPINGTONS.

Cocks, 4.—1st, L. Cabana; 2nd and 3rd, S. K. Burdin.
Hens, 8.—1st and 3rd, G. S. & F. H. Gisborne; 2nd, J. Snetsinger.
Cockerels, 11.—1st and 2nd, Ed. Lawless; 3rd, S. K. Burdin; 4th, S. K. Burdin.
Pullets, 11.—1st, 2nd, 3rd and 4th, S. K. Burdin.

BLACK ORPINGTONS.

Cocks, 8.—1st, J. V. Mulville; 2nd, Hintonburg Poultry Yards; 3rd, Ed. Lawless.
Hens, 10.—1st, Rev. G. E. Fletcher; 2nd, J. V. Mulville; 3rd, John Baum.
Cockerels, 9.—1st, J. V. Mulville; 2nd, C. Vogt; 3rd, John Baum.
Pullets, 14.—1st, J. V. Mulville; 2nd and 4th, John Baum; 3rd, C. Vogt.

SILVER GREY DORKINGS.

Cocks, 5.—1st, J. Snetsinger; 2nd, J. H. Warrington; 3rd, Point Fortune Poultry Yards.
Hens, 3.—1st and 2nd, P. A. McIntosh; 3rd, Point Fortune Poultry Yards.
Cockerels, 3.—1st and 2nd, P. A. McIntosh; 3rd, Point Fortune Poultry Yards.
Pullets, 4.—1st and 3rd, P. A. McIntosh; 2nd, Point Fortune Poultry Yards.

COLORED DORKINGS.

Cocks, 5.—1st and 2nd, J. H. Warrington; 3rd, J. Snetsinger.
Hens, 4.—1st, G. & J. Bogue; 2nd, J. Snetsinger; 3rd, J. H. Warrington.
Cockerels, 2.—1st and 2nd, J. H. Warrington.
Pullets, 5.—1st, G. & J. Bogue; 2nd, J. H. Warrington; 3rd, D. Bogue.

WHITE DORKINGS.

Cocks, 2.—1st, D. Bogue; 2nd, J. H. Warrington.
Hens, 3.—1st and 3rd, J. H. Warrington; 2nd, D. Bogue.
Cockerels, 3.—1st and 3rd, J. H. Warrington; 2nd, D. Bogue.
Pullets, 3.—1st, D. Bogue; 2nd and 3rd, J. H. Warrington.

HOUDANS.

Cocks, 5.—1st, G. & J. Bogue; 2nd, E. C. McDougall; 3rd, Wm. Holliday.
Hens, 5.—1st, G. & J. Bogue; 2nd, J. H. Warrington; 3rd, E. C. McDougall.
Cockerels, 3.—1st and 2nd, E. C. McDougall; 3rd, Wm. Holliday.
Pullets, 4.—1st, 2nd and 3rd, E. C. McDougall.

CREVE COEURS.

Cocks, 2.—1st and 2nd, G. & J. Bogue.
Hens, 3.—1st and 2nd, G. & J. Bogue; 3rd, J. H. Warrington.
Cockerels, 2.—1st and 2nd, G. & J. Bogue.
Pullets, 2.—1st and 2nd, G. & J. Bogue.

LA FLECHE.

Cocks, 4.—1st, G. & J. Bogue; 2nd, J. H. Warrington; 3rd, R. Oke.
Hens, 5.—1st and 3rd, G. & J. Bogue; 2nd, Richard Oke.
Cockerels, 2.—1st and 2nd, J. H. Warrington.
Pullets, 2.—1st and 2nd, J. H. Warrington.

BLACK HAMBURGS.

Cocks, 7.—1st, J. Baptie; 2nd, Henderson & Billings; 3rd, Point Fortune Poultry Yards.
Hens, 6.—1st, Henderson & Billings; 2nd, J. Baptie; 3rd, Point Fortune Poultry Yards.
Cockerels, 4.—1st, Richard Oke; 2nd, G. & J. Bogue; 3rd, Chas. LaRose.
Pullets, 5.—1st, Richard Oke; 2nd, G. & J. Bogue; 3rd, Henderson & Billings.

GOLDEN PENCILLED HAMBURGS.

Cocks, 4.—1st, Richard Oke; 2nd, Point Fortune Poultry Yards; 3rd, P. A. McIntosh.
Hens, 5.—1st, Richard Oke; 2nd, G. &. J. Bogue; 3rd, Point Fortune Poultry Yards.
Cockerels, 3.—1st, G. & J. Bogue; 2nd, Richard Oke; 3rd, Point Fortune Poultry Yards.
Pullets, 5.—1st and 3rd, Richard Oke; 2nd, G. &. J. Bogue.

SILVER PENCILLED HAMBURGS.

Cocks, 4.—1st and 3rd, G. & J. Bogue; 2nd, Richard Oke.
Hens, 4.—1st and 2nd, G. & J. Bogue; 3rd, Richard Oke.
Cockerels, 3.—1st, Richard Oke; 2nd and 3rd, G. & J. Bogue.
Pullets, 3.—1st, Richard Oke; 2nd and 3rd, G. & J. Bogue.

GOLDEN SPANGLED HAMBURGS.

Cocks, 4.—1st, Richard Oke; 2nd, J. Baptie; 3rd, Point Fortune Poultry Yards.
Hens, 5.—1st, J. Baptie; 2nd, J. Baptie; 3rd, Richard Oke.
Cockerels, 6.—1st, Richard Oke; 2nd, J. H. Warrington; 3rd, G. & J. Bogue.
Pullets, 5.—1st, J. Baptie; 2nd, Richard Oke; 3rd, G. & J. Bogue.

SILVER SPANGLED HAMBURGS.

Cocks, 5.—1st, Richard, Oke; 2nd, J. Baptie; 3rd, J. Baptie.
Hens, 5.—1st, Richard Oke; 2nd and 3rd, J. Baptie.
Cockerels, 6.—1st, Richard Oke; 2nd, J. Baptie; 3rd, G. & J. Bogue.
Pullets, 6.—1st, 2nd and 3rd, J. Baptie.

RED CAPS.

Cocks, 5.—1st, Thos. J. Halliday; 2nd, P. A. McIntosh; 3rd, J. H. Warrington.
Hens, 6.—1st, J. H. Warrington; 2nd, J. Snetsinger; 3rd, P. A. McIntosh.
Cockerels, 4.—1st and 2nd, Thos. J. Halliday; 3rd, Wm. Moore.
Pullets, 6.—1st, P. A. McIntosh; 2nd, Wm. Holliday; 3rd, Wm. Moore.

W. C. B. POLANDS.

Cocks, 3.—1st and 2nd, Wm. McNeil; 3rd, Point Fortune Poultry Yards.
Hens, 4.—1st and 2nd, Wm. McNeil; 3rd, Point Fortune Poultry Yards.
Cockerels, 2.—1st and 2nd, Wm. McNeil.
Pullets, 3.—1st and 2nd, Wm. McNeil; 3rd, Point Fortune Poultry Yards.

GOLDEN BEARDED POLANDS.

Cocks, 4.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.
Hens, 6.—1st and 3rd, G. & J. Bogue; 2nd, Wm. McNeil.
Cockerels, 4.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Pullets, 4.—1st, G. & J. Bogue; 2nd and 3rd, Wm. McNeil.

GOLDEN UNBEARDED POLANDS.

Cocks, 4.—1st and 2nd, G. & J. Bogue; 3rd, Wm. McNeil.
Hens, 4.—1st and 2nd, G. & J. Bogue; 3rd, Wm. McNeil.
Cockerels, 5.—1st, P. A. McIntosh; 2nd, G. & J. Bogue; 3rd, Wm. McNeil.
Pullets, 4.—1st and 3rd, G. & J. Bogue; 2nd, Wm. McNeil.

SILVER BEARDED POLANDS.

Cocks, 3.—1st, G. & J. Bogue; 2nd, J. H. Warrington; 3rd, Collins & Cornish.
Hens, 5.—1st, G. & J. Bogue; 2nd and 3rd, Collins & Cornish.
Cockerels, 5.—1st and 2nd, G. & J. Bogue; 3rd, Collins & Cornish.
Pullets, 6.—1st and 3rd, G. & J. Bogue; 2nd, D. Bogue.

SILVER UNBEARDED POLAND.

Cocks, 4.—1st, G. &. J. Bogue; 2nd and 3rd, Wm. McNeil.
Hens, 3.—1st, G. & J. Bogue; 2nd and 3rd, Wm. McNeil.
Cockerels, 3.—1st, Wm. McNeil; 2nd, G. & J. Bogue.
Pullets, 3.—1st, G. & J. Bogue,; 2nd and 3rd, Wm. McNeil.

WHITE POLANDS.

Cocks, 2.—1st and 2nd, Wm. McNeil.
Hens, 2.—1st and 2nd, Wm. McNeil.
Cockerels, 3.—1st, G. & J. Bogue; 2nd and 3rd, Wm. McNeil.
Pullets, 3.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.

WHITE BEARDED POLANDS

Cocks, 2.—1st, Wm. McNeil; 2nd, J. H. Warrington.
Hens, 2.—1st, Wm. McNeil; 2nd, J. H. Warrington.
Cockerels, 1.—1st, Wm. McNeil.
Pullets, 1.—1st, Wm. McNeil.

BUFF LACED BEARDED POLANDS.

Cocks, 3.—1st and 3rd, G. & J. Bogue; 2nd, J. H. Warrington.
Hens, 4.—1st, G. & J. Bogue; 2nd and 3rd, J. H. Warrington.
Cockerels, 4.—1st, Wm. McNeil; 2nd, G. & J. Bogue; 3rd, J. H. Warrington.
Pullets, 2.—1st and 2nd, G. & J. Bogue.

SILKIES.

Cocks, 5.—1st, Knowlton, Lathey; 2nd, Mason & Wadsworth; 3rd, J. H. Warrington.
Hens, 6.—1st, Knowlton Lathey; 2nd and 3rd, Mason & Wadsworth.
Cockerels, 5.—1st Mason & Wadsworth; 2nd, Point Fortune Poultry Yards; 3rd, J. H. Warrington.
Pullets, 3.—1st, Mason & Wadsworth; 2nd, J. H. Warrington.

A. O. V. FOWLS.

Cocks, 1.—1st, J. H. Warrington.
Hens, 1.—1st, J. H. Warrington.
Cockerels, 1.—1st, Wm. Moore.
Pullets, 1.—1st, Wm. Moore.

BLACK-RED GAME BANTAMS.

Cocks, 1.—1st, Point Fortune Poultry Yards.
Hens, 4.—1st and 3rd, W. Barber; 2nd, Rook Bros.
Cockerels, 4.—1st and 2nd, W. Barber; 3rd, Rook Bros.
Pullets, 4.—1st and 2nd, W. Barber; 3rd, Rook Bros.

DUCKWING GAME BANTAMS.

Cocks, 2.—1st and 2nd, W. Barber.
Hens, 2.—1st and 2nd, W. Barber.
Cockerels, 4.—1st and 2nd, W. Barber; 3rd, Rook Bros.
Pullets, 2.—1st and 2nd, W. Barber.

PYLE GAME BANTAMS.

Cocks, 1.—1st, W. Barber.
Hens, 2.—1st, J. H. Warrington; 2nd, W. Barber.
Cockerels, 2.—1st and 2nd, W. Barber.
Pullets, 2.—1st and 2nd, W. Barber.

A. O. V. GAME BANTAMS.

Cocks, 2.—1st, Rook Bros.; 2nd, J. Mason & Son.
Hens, 2.—1st, Rook Bros.; 2nd, J. Mason & Son.
Cockerels, 5.—1st and 2nd, Rook Bros.; 3rd, J. Mason & Son.
Pullets, 4.—1st and 2nd, Rook Bros.; 3rd, J. H. Warrington.

G. SEBRIGHT BANTAMS.

Cocks, 4.—1st, Richard Oke; 2nd, J. S. Greenshields.
Hens, 5.—1st, Richard Oke; 2nd, J. S. Greenshields; 3rd, G. N. Ellis.
Cockerels, 3.—1st, Richard Oke; 2nd, G. N. Ellis.
Pullets, 5.—1st, G. N. Ellis; 2nd, Chas. LaRose; 3rd, Point Fortune Poultry Yards.

S. SEBRIGHT BANTAMS.

Cocks, 2.—1st, Richard Oke; 2nd, Chas. LaRose.
Hens, 2.—1st, Richard Oke; 2nd, Chas. LaRose.
Cockerels, 2.—1st, Richard Oke; 2nd, G. A. Dixon.
Pullets, 2.—1st, Richard Oke; 2nd, G. A. Dixon.

WHITE ROSE COMB BANTAMS.

Cocks, 1.—1st, Richard Oke.
Hens, 1.—1st, Richard Oke.
Cockerels, 1.—1st, Richard Oke.
Pullets, 1.—1st, Richard Oke.

A. O. V. ROSE COMB BANTAMS.

Cocks, 3.—1st, Richard Oke; 2nd, Point Fortune Poultry Yards; 3rd, J. Mason & Son.
Hens, 5.—1st, Richard Oke; 2nd and 3rd, J. Mason & Son.
Cockerels, 3.—1st and 2nd, Richard Oke; 3rd, J. Mason & Son.
Pullets, 3.—1st and 2nd, Richard Oke; 3rd, Thos. J. Halliday.

BUFF COCHIN BANTAMS.

Cocks, 3.—1st and 2nd, A. C. Despres.
Hens, 4.—1st, Deverell Bros.; 2nd, A. C. Despres; 3rd, Capital Pigeon Lofts.
Cockerels, 4.—1st and 3rd, A. C. Despres; 2nd, Fred. W. King.
Pullets, 6.—1st and 3rd, Fred. W. King; 2nd, A. C. Despres.

WHITE COCHIN BANTAMS.

Cocks, 1.—1st, Wm. A. Smith.
Hens, 2.—1st, Fred. W. King; 2nd, Wm. A. Smith.
Cockerels, 2.—1st, Wm. A. Smith; 2nd, Deverell Bros.
Pullets, 2.—1st, Wm. A. Smith; 2nd, Deverell Bros.

PARTRIDGE COCHIN BANTAMS.

Cockerels, 2.—1st and 2nd, Deverell Bros.
Pullets, 2.—1st and 2nd, Deverell Bros.

BLACK COCHIN BANTAMS.

Cocks, 4.—1st and 2nd, Point Fortune Poultry Yards; 3rd, Deverell Bros.
Hens, 4.—1st and 3rd, Point Fortune Poultry Yards; 2nd, Deverell Bros.
Cockerels, 2.—1st, Deverell Bros.; 2nd, Point Fortune Poultry Yards.
Pullets, 4.—1st and 2nd, Point Fortune Poultry Yards; 3rd, L. Cabana.

LIGHT BRAHMA BANTAMS.

Cockerels, 1.—1st, L. Cabana.
Pullets.—1st, 2nd and 3rd, L. Cabana.

WHITE BOOTED BANTAMS.

Cocks, 1.—1st, J. H. Warrington.
Hens, 1.—1st, J. H. Warrington.
Pullets, 3.—1st and 2nd, Wm. A. Smith; 3rd, J. H. Warrington.

JAPANESE BLACK-TAILED BANTAMS.

Cocks, 2.—1st, Richard Oke; 2nd, G. A. McInnes.
Hens, 2.—1st, Richard Oke; 2nd, G. A. McInnes.
Cockerels, 1.—1st, Richard Oke.
Pullets, 1.—1st, Richard Oke.

A. O. V. JAPANESE BANTAMS.

Cocks, 4.—1st and 2nd, Richard Oke; 3rd, G. A. McInnes.
Hens, 4.—1st and 2nd, Richard Oke; 3rd, G. A. McInnes.
Cockerels, 1.—1st, Richard Oke.
Pullets, 3.—1st and 3rd, G. A. McInnes; 2nd, R. Oke.

A. O. S. V. BANTAMS.

Cocks, 1.—1st, Wm. A. Smith.
Hens, 1.—1st, Wm. A. Smith.
Cockerels, 3.—1st and 2nd, Wm. McNeil.
Pullets, 3.—1st, Wm. McNeil; 2nd, Wm. A. Smith.

BRONZE TURKEYS.

Cocks, 3.—1st, 2nd and 3rd, J. Snetsinger.
Hens, 5.—1st, 2nd and 3rd, J. Snetsinger.
Cockerels, 7.—1st, D. Cumming; 2nd and 3rd, J. Snetsinger.
Pullets, 4.—1st and 3rd, J. Snetsinger; 2nd, D. Cumming.

WHITE TURKEYS.

Cocks, 3.—1st, E. S. Baker; 2nd, Geo. Baker; 3rd, D. Cumming.
Hens, 4.—1st and 2nd, E. S. Baker; 3rd, Geo. Baker.
Cockerels, 2.—1st and 2nd, E. S. Baker.
Pullets, 2.—1st and 2nd, E. S. Baker.

A. O. S. V. TURKEYS.

Cocks, 2.—1st, D. Cumming; 2nd, P. A. McIntosh.
Hens, 1.—1st, P. A. McIntosh.
Cockerels, 1.—1st, D. Cumming.
Pullets, 1.—1st, D. Cumming.

TOULOUSE GEESE.

Male, old, 2.—1st, E. S. Baker; 2nd, J. Burton.
Female, old, 3.—1st, E. S. Baker; 2nd, J. Burton.
Male, young, 3.—1st, E. S. Baker; 2nd, P. A. McIntosh; 3rd, D. Cumming.
Female, young, 3.—1st, E. S. Baker; 2nd, P. A. McIntosh; 3rd, D. Cumming.

EMBDEN GEESE.

Male, old, 2.—1st, E. S. Baker; 2nd, P. A. McIntosh.
Female, old, 2.—1st, P. A. McIntosh; 2nd, E. S. Baker.
Male, young, 3.—1st, E. S. Baker; 2nd, P. A. McIntosh.
Female, young, 3.—1st, E. S. Baker; 2nd, P. A. McIntosh; 3rd, D. Cumming.

CHINA GEESE.

Male, old, 2.—1st, E. S. Baker; 2nd, P. A. McIntosh.
Female, old, 3.—1st and 2nd, E. S. Baker; 3rd, P. A. McIntosh.
Male, young, 2.—1st, E. S. Baker; 2nd, P. A. McIntosh.
Female, Young, 3.—1st, E. S. Baker; 2nd, J. Snetsinger; 3rd, P. A. McIntosh.

A. O. V. GEESE.

Male, old, 2.—1st, E. S. Baker; 2nd, P. A. McIntosh.
Female, old, 2.—1st, E. S. Baker; 2nd, P. A. McIntosh.
Male, young, 1.—1st, E. S. Baker.
Female, young, 1.—1st, E. S. Baker.

ROUEN DUCKS.

Male, old, 4.—1st and 3rd, E. S. Baker; 2nd, G. & J. Bogue.
Female, old, 5.—1st, G. & J. Bogue; 2nd, E. S. Baker; 3rd, P. A. McIntosh.
Male, young, 4.—1st, G. & J. Bogue; 2nd and 3rd, E. S. Baker.
Female, young, 5.—1st and 2nd, G. & J. Bogue; 3rd, E. S. Baker.

PEKIN DUCKS.

Male, old, 2.—1st, E. S. Baker; 2nd, J. Snetsinger.
Female, old, 2.—1st, E. S. Baker.
Male, young, 3.—1st, E. S. Baker; 2nd, J. Snetsinger; 3rd, P. A. McIntosh.
Female, young, 4.—1st, E. S. Baker; 2nd, J. Snetsinger; 3rd, P. A. McIntosh.

AYLESBURY DUCKS.

Male, old, 2.—1st, G. & J. Bogue; 2nd, L. J. Gibbons.
Female, old, 4.—1st and 2nd, G. & J. Bogue; 3rd, L. J. Gibbons.
Male, young, 3.—1st, P. A. McIntosh; 2nd, E. S. Baker; 3rd, L. J. Gibbons.
Female, young, 5.—1st and 2nd, G. & J. Bogue; 3rd, L. J. Gibbons.

CAYUGA DUCKS.

Male, old, 3.—1st and 2nd, E. S. Baker; 3rd, J. H. Warrington.
Female, old, 3.—1st and 2nd, E. S. Baker.
Male, young, 4.—1st and 2nd, E. S. Baker; 3rd, P. A. McIntosh.
Female, young, 5.—1st and 2nd, E. S. Baker; 3rd, J. H. Warrington.

INDIAN RUNNER DUCKS.

Male, old, 1.—1st, E. S. Baker.
Female, old, 1.—1st, E. S. Baker.
Male, young, 2.—1st, E. S. Baker; 2nd, P. A. McIntosh.
Female, young, 2.—1st, E. S. Baker; 2nd, P. A. McIntosh.

A. O. V. DUCKS.

Male, old, 3.—1st, E. S. Baker; 2nd, P. A. McIntosh; 3rd, Geo. K. Thompson.
Female, old, 3.—1st, E. S. Baker; 2nd, G. K. Thompson; 3rd, P. A. McIntosh.
Male, young, 4.—1st and 2nd, E. S. Baker; 3rd, G. K. Thompson.
Female, young, 3.—1st, E. S. Baker; 2nd, G. K. Thompson; 3rd, P. A. McIntosh.

EXHIBITION PENS OF FOWL.

PLYMOUTH ROCKS, ANY SOLID COLOR.

Pens, 4.—1st, G. Robertson; 2nd and 3rd, M. A. Lathey.

PLYMOUTH ROCKS, ANY PARTI-COLOR.

Pens, 10.—1st and 2nd, F. A. James; 3rd, D. B. Alexander.

WYANDOTTES, ANY SOLID COLOR.

Pens, 3.—1st, G. Higman, Sr.; 2nd, Wm. Arnold; 3rd, J. Mason & Son.

WYANDOTTES, ANY PARTI-COLOR.

Pens, 4.—1st, Gunn, Langlois & Co.; 2nd, G. Higman, Jr.; 3rd, Hintonburg Poultry Yards.

RHODE ISLAND REDS.

Pens, 2.—1st, Hintonburg Poultry Yards; 2nd, Rev. J. H. Chant.

AMERICAN, ANY OTHER VARIETY.

Pens, 1.—1st, Point Fortune Poultry Yards.

LEGHORNS, ANY SOLID COLOR.

Pens, 8.—1st and 2nd, W. J. Bullock; 3rd, S. Crouch.

LEGHORN, ANY PARTI-COLOR.

Pens, 2.—1st, Collins & Cornish.

MEDITERRANEAN, ANY OTHER VARIETY.

Pens, 5.—1st and 2nd, L. V. Zavitz; 3rd, Wm. Ellis.

ORPINGTONS.

Pens, 7.—1st and 2nd, A. W. E. Hellyer; 3rd, Deverell Bros.

ASIATICS.

Pens, 5.—1st, R. McCurdy; 2nd, Jas. H. Saunders; 3rd, Wm. Holliday.

FOWLS, ANY OTHER VARIETY.

Pens, 4.—1st, Wm. McNeil; 2nd, G. & J. Bogue; 3rd, Point Fortune Poultry Yards

PEN OF UTILITY FOWL.

Pens, 13.—1st, G. Robertson; 2nd, J. Shirreffs; 3rd, T. G. Slinn.

PIGEONS.

CARRIER.

Cocks, 2.—1st, Hiawatha Pigeon Lofts.
Hens, 2.—1st, W. H. Reid; 2nd, Hiawatha Pigeon Lofts.

WHITE POUTERS.

Cocks, 3.—1st and 2nd, W. H. Reid; 3rd, Geo. K. Thompson.
Hens, 2.—1st and 2nd, W. H. Reid.

A. O. C. POUTERS.

Cocks, 2.—1st, Geo. K. Thompson; 2nd, W. H. Reid.
Hens, 2.—1st, Geo. K. Thompson; 2nd, W. H. Reid.

PIGMY POUTERS.

Cocks, 4.—1st and 2nd, J. S. Greenshields.
Hens, 5.—1st and 2nd, J. S. Greenshields.

MUFFED TUMBLER (ANY SOLID COLOR).

Cocks, 5.—1st, A. C. Despres; 2nd, A. & T. Readwin.
Hens, 4.—1st, A. & T. Readwin; 2nd, A. C. Despres.

MUFFED TUMBLER (ANY OTHER COLOR).

Cocks, 2.—1st, P. Beauchamp; 2nd, Hiawatha Pigeon Lofts.
Hens, 2.—1st, P. Beauchamp; 2nd, Hiawatha Pigeon Lofts.

L. F. CLEAN LEG TUMBLERS.

Cocks, 5.—1st and 2nd, Hiawatha Pigeon Lofts.
Hens, 4.—1st, W. H. Reid; 2nd, Hiawatha Pigeon Lofts.

S. F. TUMBLERS.

Cocks, 2.—1st and 2nd, W. H. Reid.
Hens, 2.—1st and 2nd, W. H. Reid.

BARB (ANY COLOR).

Cocks, 2.—1st, Hiawatha Pigeon Lofts; 2nd, Capital Pigeon Lofts.
Hens, 2.—1st, Hiawatha Pigeon Lofts; 2nd, Capital Pigeon Lofts.

TRUMPETERS.

Cocks, 2.—1st and 2nd, W. H. Reid.
Hens, 2.—1st and 2nd, W. H. Reid.

R. OR Y. JACOBINS.

Cocks, 5.—1st and 2nd, R. K. Barker.
Hens, 6.—1st and 2nd, R. K. Barker.

WHITE JACOBINS.

Cocks, 3.—1st and 2nd, R. K. Barker.
Hens, 4.—1st and 2nd, R. K. Barker.

A. O. S. C. JACOBINS.

Cocks, 3.—1st and 2nd, R. K. Barker.
Hens, 3.—1st and 2nd, R. K. Barker.

R. C. ANTWERPS.

Cocks, 1.—1st, W. H. Reid.
Hens, 2.—1st and 2nd, W. H. Reid.

SILVER DUN ANTWERPS.

Cocks, 2—1st and 2nd, W. H. Reid.
Hens, 2.—1st and 2nd, W. H. Reid.

WHITE FANTAILS.

Cocks, 6.—1st and 2nd, Geo. Trimble.
Hens, 6.—1st and 2nd, Geo. Trimble.

BLUE FANTAILS.

Cocks, 5.—1st, Geo. C. Beeson; 2nd, J. S. Greenshields.
Hens, 6.—1st, Geo. C. Beeson; 2nd, A. & T. Readwin.

A. O. S. C. FANTAILS.

Cocks, 8.—1st and 2nd, Geo. Trimble.
Hens, 9.—1st, Geo. Trimble; 2nd, J. S. Greenshields.

BLACK MAGPIES.

Cocks, 10.—1st and 2nd, J. S. Greenshields.
Hens, 10.—1st, J. S. Greenshields; 2nd, W. & A. Hambly.

RED MAGPIES.

Cocks, 6.—1st, J. S. Greenshields; 2nd, A. E. Bourgingnon.
Hens, 6.—1st and 2nd, J. S. Greenshields.

YELLOW MAGPIES.

Cocks, 7.—1st and 2nd, A. E. Bourgingnon.
Hens, 9.—1st and 2nd, A. E. Bourgingnon.

A. O. C. MAGPIES.

Cocks, 7.—1st, J. S. Greenshields; 2nd, A. E. Bourgingnon.
Hens, 7.—1st, A. E. Bourgingnon; 2nd, J. S. Greenshields.

SHOW HOMERS.

Cocks, 2.—1st and 2nd, W. H. Reid.
Hens, 2.—1st and 2nd, W. H. Reid.

RED CHEQUERED FLYING HOMERS.

Cocks, 4.—1st and 2nd, John Gill.
Hens, 3.—1st and 2nd, John Gill.

BLUE CHEQUERED FLYING HOMERS.

Cocks, 6.—1st and 2nd, G. A. Carriere.
Hens, 6.—1st and 2nd, G. A. Carriere.

BLUE OR SILVER FLYING HOMERS.

Cocks, 9.—1st and 2nd, J. Gill.
Hens, 8.—1st, G. C. Beeson; 2nd, J. Gill.

FLYING HOMERS (ANY SOLID COLOR).

Cocks, 5.—1st and 2nd, G. A. Carriere.
Hens, 5.—1st and 2nd, G. A. Carriere.

A. O. C. FLYING HOMERS.

Cocks, 2.—1st, A. Bureau; 2nd, P. Beauchamp.
Hens, 2.—1st, P. Beauchamp; 2nd, A. Bureau.

BLACK SWALLOWS.

Cocks, 3.—1st, Hiawatha Pigeon Lofts; 2nd, P. Beauchamp.
Hens, 5.—1st, A. & T. Readwin; 2nd, P. Beauchamp.

A. O. SOL. C. SWALLOWS.

Cocks, 5.—1st, W. H. Reid; 2nd, Capital Pigeon Lofts.
Hens, 4.—1st, P. Beauchamp; 2nd, W. H. Reid.

A. O. C. SWALLOWS.

Cocks, 4.—1st, W. H. Reid; 2nd, P. Beauchamp.
Hens, 4.—1st, W. H. Reid; 2nd, P. Beauchamp

DRAGOONS.

Cocks, 1.—1st, Hiawatha Pigeon Lofts.

ARCHANGELS.

Cocks, 4.—1st and 2nd, W. H. Reid.
Hens, 3.—1st, W. H. Reid; 2nd, A. & T. Readwin.

BLACK NUNS.

Cocks, 4.—1st, G. A. Carriere; 2nd, A. & T. Readwin.
Hens, 4.—1st, Hiawatha Pigeon Lofts; 2nd, T. A. Carriere.

A. O. C. NUNS.

Cocks, 3.—1st, A. & T. Readwin; 2nd, Hiawatha Pigeon Lofts.
Hens, 2.—1st, Hiawatha Pigeon Lofts; 2nd, A. & T. Readwin.

WHITE AFRICAN OWLS.

Cocks, 2.—1st, W. H. Reid; 2nd, Hiawatha Pigeon Lofts.
Hens, 2.—1st, Hiawatha Pigeon Lofts.

A. O. C. AFRICAN OWLS.

Cocks, 3.—1st, W. H. Reid; 2nd, J. S. Greenshields.
Hens, 2.—1st, J. S. Greenshields; 2nd, W. H. Reid.

ENGLISH OWLS, ANY VARIETY.

Cocks, 1.—1st, W. H. Reid.
Hens, 1.—1st, W. H. Reid.

A. O. V. OWLS.

Cocks, 3.—1st, W. H. Reid; 2nd, Hiawatha Pigeon Lofts.
Hens, 2.—1st, W. H. Reid; 2nd, Hiawatha Pigeon Lofts.

BLACK TURBITS.

Cocks, 2.—1st and 2nd, J. S. Greenshields.

BLUE TURBITS.

Cocks, 1.—1st, J. S. Greenshields.
Hens, 2.—1st, Hiawatha Pigeon Lofts; 2nd, J. S. Greenshields.

A. O. C. TURBITS.

Cocks, 3.—1st and 2nd, J. S. Greenshields.
Hens, 3.—1st and 2nd, J. S. Greenshields.

A. O. S. VARIETY PIGEONS.

Cocks, 3.—1st, A. & T. Readwin; 2nd, Capital Pigeon Lofts.
Hens, 3.—1st, A. & T. Readwin; 2nd, Capital Pigeon Lofts.

PAIR CAVIES.

Pair, 3.—1st and 2nd, J. A. & M. Benson.

PHEASANTS.

Pair, 2.—1st, W. H. Reid; 2nd, Capital Pigeon Lofts.

BELGIAN HARES, OVER SIX MONTHS.

Males, 2.—1st and 2nd, A. H. Pratt.
Females, 2.—1st, A. H. Pratt; 2nd, G. Bysshe.

BELGIAN HARES, UNDER SIX MONTHS.

Males, 3.—1st and 2nd, A. H. Pratt.
Females, 3.—1st and 2nd, A. H. Pratt.

RABBITS.

Males, 8.—1st, Maurice Page; 2nd, A. H. Pratt.
Females, 7.—1st and 2nd, Maurice Page.

DRESSED POULTRY.

PAIR JAVAS, LANGSHANS, OR RHODE ISLAND REDS OF 1911, ANY VARIETY.

Pairs, 1.—1st, A. Dynes.

PAIR PLYMOUTH ROCKS OF 1911, ANY VARIETY.

Pairs, 8.—1st, 2nd and 3rd, A. Dynes.

PAIR OF WYANDOTTES OF 1911, ANY VARIETY.

Pairs, 7.—1st and 2nd, W. H. Slinn; 3rd, A. Dynes.

PAIR MINORCAS, ANDALUSIANS OR LEGHORNS OF 1911, ANY VARIETY.

Pairs, 3.—1st, Sarah Crouch; 2nd, J. Evans; 3rd, W. H. Slinn.

PAIR ORPINGTONS OF 1911, ANY VARIETY.

Pairs, 5.—1st and 2nd, W. H. Slinn; 3rd, J. Evans.

PAIR GAMES OF 1911, ANY VARIETY.

Pairs, 1.—1st, Chas. LaRose.

CASE OF FATTED COCKERELS.

Cocks, 6.—1st and 2nd, A. A. Armstrong; 3rd, R. G. Grant; 4th, G. Fyfe.

TURKEYS.

Male, old, 3.—1st, Geo. R. Bradley; 2nd, J. Snetsinger; 3rd, J. Evans.
Female, old, 3.—1st R. G. Grant; 2nd, J. Snetsinger; 3rd, J. Evans.
Male, young, 3.—1st, R. G. Grant; 2nd, J. Snetsinger.
Female, young, 2.—1st, R. G. Grant; 2nd, J. Snetsinger.

GEESE OF 1911, WHITE

Entries, 5.—1st, 2nd and 3rd, R. G. Grant.

GEESE OF 1911, COLORED.

Entries, 5.—1st, 2nd and 3rd, R. G. Grant.

PAIR DUCKS OF 1911, WHITE.

Pair, 4.—1st, 2nd and 3rd, R. G. Grant.

PAIR DUCKS OF 1911, COLORED.

Pairs, 3.—1st, 2nd and 3rd, R. G. Grant.

SELLING CLASS.

DORKINGS.

Males, 4.—1st, Wm. McNeil; 2nd, D. Cumming; 3rd, J. Snetsinger.
Females, 3.—1st, J. H. Warrington; 2nd, D. Cumming; 3rd, J. Snetsinger.

ASIATICS.

Males, 9.—1st, R. McCurdy; 2nd, Gunn Langlois & Co.; 3rd, J. Snetsinger.
Females, 3.—1st and 2nd, R. McCurdy; 3rd, J. Snetsinger.

PLYMOUTH ROCKS.

Males, 60.—1st, S. E. Alexander; 2nd, A. H. Foster; 3rd, J. Pringle.
Females, 6.—1st, Chas. LaRose; 2nd and 3rd, S. Crouch.

WYANDOTTES.

Males, 22.—1st, W. R. Croshaw; 2nd, J. Grant; 3rd, Highland Park Poultry Yards.
Females, 11.—1st, W. R. Croshaw; 2nd, J. Grant; 3rd, S. Crouch.

RHODE ISLAND REDS.

Males, 4.—1st, Point Fortune Poultry Yards; 2nd, Hintonburg Poultry Yards; 3rd, D. Cumming.
Females, 2.—1st, John Gill; 2nd, Point Fortune Poultry Yards.

ORPINGTONS.

Males, 8.—1st, W. H. Slinn; 2nd and 3rd, E. C. McDougall.
Females, 5.—1st, W. H. Slinn; 2nd, A. W. E. Hellyer; 3rd, E. Robinson.

MINORCAS.

Males, 8.—1st, Hintonburg Poultry Yards; 2nd and 3rd, L. V. Zavitz.
Females, 6.—1st, Hintonburg Poultry Yards; 2nd, L. V. Zavitz; 3rd, J. Grant.

LEGHORNS.

Males, 49.—1st, S. Crouch; 2nd and 3rd, D. McKellar.
Females, 10.—1st, J. Snetsinger; 2nd, D. McKellar; 3rd, S. E. Ellis.

FRENCH.

Males, 2.—1st, J. H. Warrington; 2nd, E. C. McDougall.
Females, 2.—1st, J. H. Warrington; 2nd, E. C McDougall.

A. O. V. FOWLS.

Males, 16.—1st, J. Baptie; 2nd, J. Snetsinger; 3rd, Point Fortune Poultry Yards.
Females, 8.—1st, J. Baptie; 2nd, Collins & Cornish; 3rd, J. Snetsinger.

DUCKS.

Males, 8.—1st, E. S. Baker; 2nd and 3rd, J. Snetsinger.
Females, 9.—1st, E. S. Baker; 2nd, J. Snetsinger; 3rd, D. Cumming.

POULTRY SPECIALS.

Light Brahmas.—Best cock, Collins & Cornish; best male, Collins & Cornish; best female, P. H. Sauve; best collection, P. H. Sauve.

Dark Brahmas.—Best male, C. H. Wilson; best female, C. H. Wilson; best collection, C. H. Wilson.

Brahmas.—Best collection of Light or Dark Brahmas, C. H. Wilson.

Buff Cochine.—Best male, Wm. Holliday; best collection, Wm. Holliday.

Partridge Cochins.—Best cockerel, Wm. Holliday; best collection, Wm. Holliday.

Black or White Cochins.—Best collection, Wm. Holliday.

Cochins.—Best collection, Wm. Holliday.

Langshans.—Best male, R. McCurdy; best collection, R. McCurdy.

Asiatics.—Best collection, other than Light Brahmas, Wm. Holliday.

Barred Plymouth Rocks.—Best cock, J. Pringle; best hen, J. Pringle; best cockerel, J. Pringle; best pullet, F. A. James; best male, J. Pringle; best collection, J. Pringle.

White Plymouth Rocks.—Best cock, Geo. Robertson; best hen, Geo. Robertson; best cockerel, Geo. Robertson; best pullet, Geo. Robertson; best collection, Geo. Robertson; best pen, Geo. Robertson.

Buff Plymouth Rocks.—Best cockerel, Hintonburg Poultry Yards; best male, Henderson & Billings; best female, Henderson & Billings; best collection, McCaffrey Bros.

A. O. V. Plymouth Rocks.—Best cockerel, R. E. Blakely; best male, A. M. McBride; best female, R. E. Blakely; best collection, R. E. Blakely.

Plymouth Rocks, other than Barred or White.—Best collection, McCaffrey Bros.

Golden Wyandottes.—Best cock, R. Patterson; best hen, R. Patterson; best cockerel, G. Higman, Sr.; best female, Geo. Higman, Sr.; best collection, R. Patterson.

Silver Wyandottes.—Best cock, Hintonburg Poultry Yards; best hen, Hintonburg Poultry Yards; best male, Hintonburg Poultry Yards; best female, Hintonburg Poultry Yards; best collection, Hintonburg Poultry Yards.

Buff Wyandottes.—Best cock, C. Allison; best three cocks, J. Mason & Son; best cockerel, J. Mason & Son; best cockerel and pullet, J. Mason & Son; best pullet, J. Mason & Son; best collection, J. Mason & Son; best pen, J. Mason & Son.

White Wyandottes.—Best cock, Wm. Arnold; best hen, C. G. Shaw; best cockerel, C. G. Shaw; best pullet, C. G. Shaw; best cock, hen, cockerel and pullet, C. G. Shaw; best male, C. G. Shaw; best collection, C. G. Shaw.

Partridge Wyandottes.—Best cock, Adam Bros.; best cock and hen, Adam Bros.; best cockerel, Adam Bros.; best pullet, Adam Bros.; best collection, Adam Bros.

Columbian Wyandottes.—Best cock, S. J. Schelly; best male, S. J. Schelly; best female, G. F. Wadsworth; best collection, G. F. Wadsworth.

Black Wyandottes.—Best male, Hintonburg Poultry Yards.

A. O. V. Wyandottes.—Best cock, R. Patterson; best collection, R. Patterson.

Wyandottes, other than White or Buff.—

Black or Mottled Javas.—Best male, P. A. McIntosh; best female, Hintonburg Poultry Yards; best collection, J. H. Warrington.

R. C. Rhode Island Reds.—Best cock, Hintonburg Poultry Yards; best cockerel, Hintonburg Poultry Yards; best pullet, John Gill; best female, Hintonburg Poultry Yards; best collection, Hintonburg Poultry Yards.

S. C. Rhode Island Reds.—Best cock, Hintonburg Poultry Yards; best cock, hen, cockerel and pullet, Hintonburg Poultry Yards; best male, Hintonburg Poultry Yards; best female, Hintonburg Poultry Yards; best collection, Hintonburg Poultry Yards.

Rhode Island Reds.—Best cock, hen, cockerel and pullet, Hintonburg Poultry Yards.

Games.—Best B. B. Red Game Pullet, W. Barber; best collection, B. B. Red Games, J. Lawson; best B. B. Red male, W. Barber.

Brown Red Games.—Best collection, W. Barber; best male, W. Barber.

Duckwing Games.—Best collection, W. Barber; best male, W. Barber.

Pyle Games.—Best collection, W. Barber; best male, W. Barber.

C. Indian (laced) Games.—Best male, W. Casey; best collection, W. Casey.

A. O. S. V. or W. Indian Games.—Best collection, Point Fortune Poultry Yards; best collection, any variety Standard Games, W. Barber.

Sumatra Games.—Best male, J. H. Warrington.

S. C. White Leghorns.—Best cock, W. J. Bullock; best hen, S. Crouch; best cockerel, W. J. Bullock; best pullet, S. Crouch; best cock, hen, cockerel and pullet, W. J. Bullock; best collection, W. J. Bullock; best pen, W. J. Bullock.

S. C. Brown Leghorns.—Best female, K. K. McLeod; best collection, Collins & Cornish.

S. C. Black Leghorns.—Best cock, E. Robinson; best male, E. Robinson; best female, Henderson & Billings; best collection, Henderson & Billings.

S. C. Buff Leghorns.—Best male, Henderson & Billings; best female, D. B. Alexander; best collection, Henderson & Billings.

S. C. Leghorns, other than White or Brown.—Best collection, Henderson & Billings.

R. C. Brown Leghorns.—Best male, Henderson & Billings; best female, Henderson & Billings; best collection, Henderson & Billings.

R. C. White Leghorns.—Best male, C. H. Wilson; best collection, C. H. Wilson.

R. C., A. O. S. V. Leghorns.—Best male, C. H. Wilson; best collection, C. H. Wilson.

Spanish.—Best male, J. H. Warrington; best female, P. A. McIntosh.

Anconas.—Best male, Jas. Baptie; best pullet, Jas. Baptie; best collection, L. Cabana.

Andalusians.—Best male, Chas. LaRose; best female, Chas. LaRose; best collection, Chas. LaRose.

Black Minorcas.—Best cock, Hintonburg Poultry Yards; best hen, L. V. Zavitz; best cockerel, L. V. Zavitz; best pullet, Hintonburg Poultry Yards; best male, L. V. Zavitz; best female, Hintonburg Poultry Yards; best collection, L. V. Zavitz.

White Minorcas.—Best cock and hen, E. A. Bock; best S. C. cockerel and pullet, E. A. Bock; best collection, E. A. Bock.

Buff Orpingtons.—Best cock, A. W. E. Hellyer; best hen, A. W. E. Hellyer; best cockerel, A. W. E. Hellyer; best pullet, A. W. E. Hellyer; best male, A. W. E. Hellyer; best collection, A. W. E. Hellyer.

White Orpingtons.—Best cockerel, Ed. Lawless; best two cocks, two hens, two cockerels and two pullets, S. K. Burdin; best male, Ed. Lawless; best female, S. K. Burdin.

Black Orpingtons.—Best cockerel, Ed. Lawless; best male, Hintonburg Poultry Yards.

Silver Grey Dorkings.—Best male, J. Snetsinger; best collection, P. A. McIntosh.

Colored Dorkings.—Best male, J. H. Warrington; best collection, J. H. Warrington.

White Dorkings.—Best collection, J. H. Warrington.

Dorkings.—Best collection of any one variety, P. A. MacIntosh.

Houdans.—Best male, E. C. McDougall; best female, E. C. McDougall; best collection, E. C. McDougall.

French.—Best collection of any one variety, G. & J. Bogue.

Hamburgs.—Best collection Black Hamburgs, Richard Oke; best collection G. P. Hamburgs, Richard Oke; best collection G. S. Hamburgs, James Baptie; best three S. S. Hamburg cockerels, James Baptie; best collection S. S. Hamburgs, James Baptie.

Red Caps.—Best young pair, Wm. Moore; best collection, P. A. McIntosh.

Polands.—Best collection, W. C. B., Wm. McNeil; best collection Golden, any variety, G. & J. Bogue; best collection Silver, G. & J. Bogue; best Silver Polish cock, G. & J. Bogue; best collection Buff-laced, G. & J. Bogue; best collection, any one variety, Wm. McNeil.

Silkies.—Best male, Mason & Wadsworth; best hen, Mason & Wadsworth; best collection, Mason & Wadsworth.

Game Bantams.—Best male, Wm. Barber; best female, Wm. Barber; best collection, Wm. Barber; best B. B. Red Game Bantams, Hintonburg Poultry Yards; best Duckwing Game Bantams, W. Barber.

Ornamental Bantams.—Best collection Sebrights, any one variety, Richard Oke; best collection Rose Comb Bantams, any one variety, Richard Oke; best collection Japanese Bantams, any one variety, Richard Oke; best collection Cochins, any one variety, Point Fortune Poultry Yards; best cock, hen, cockerel and pullet, Richard Oke.

Turkeys.—Best bronze male, J. Snetsinger; best collection bronze, J. Snetsinger; best collection, other than bronze, E. S. Baker; best collection, any other variety, J. Snetsinger.

Geese.—Best collection Embden, E. S. Baker; best collection any one variety, E. S. Baker.

Ducks.—Best collection Rouen, G. & J. Bogue; best Pekin male, E. S. Baker; best collection Pekin, E. S. Baker; best collection Cayuga, E. S. Baker; best collection, other than Pekin, Rouen or Cayuga, E. S. Baker.

PIGEON SPECIALS.

Best collection S. F. Tumblers.—W. H. Reid.
Best Bald Tumbler.—Hiawatha Pigeon Lofts.
Best pair Black Bald-headed Tumblers.—Hiawatha Pigeon Lofts.
Best pair Barbs.—Hiawatha Pigeon Lofts.
Best pair Black Barbs.—Hiawatha Pigeon Lofts.
Best Black Fantail.—Geo. Trimble.
Best Black Magpie.—J. S. Greenshields.
Best Red Magpie Hen.—J. S. Greenshields.
Best Magpie in the Show.—J. S. Greenshields.
Best collection Magpies.—J. S. Greenshields.
Best Red Chequered Homer.—John Gill.
Best Flying Homer in Show.—John Gill.
Best Blue Dragoon.—Hiawatha Pigeon Lofts.
Best pair Archangels.—W. H. Reid.
Best pair Yellow or Dun Nuns.—A. & T. Readwin.
Best pair English Owls.—W. H. Reid.
Best collection Turbits, not less than six birds.—J. S. Greenshields.
Best male bird.—W. H. Reid.
Best female bird.—J. S. Greenshields.

MISCELLANEOUS POULTRY SPECIAL PRIZES.

Pheasants, best collection.—W. H. Reid.
Belgian Hares, best collection.—A. H. Pratt.
Rabbits, best pair Steel Grey Flemish Giant.—Maurice Page; best Flemish Giant doe, under 8 months, Maurice Page.
Utility Fowls.—G. Robertson.
Water Fowl, best collection, any one variety.—E. S. Baker.
Best cock, hen, cockerel and pullet.—A. W. E. Hellyer.
Best pair chicks, utility breeds.—Geo. Robertson.
Largest and best collection, any variety.—W. J. Bullock.
Second largest and best collection.—A. W. E. Hellyer.
Best bird in the Show.—J. Snetsinger.
Best shaped bird in the large fowl classes.—D. McKellar.
Best shaped Bantam in the Show.—W. Barber.

DRESSED POULTRY SPECIALS.'

Best pair cockerels.—W. H. Slinn.
Best three pair cockerels.—A. A. Armstrong.
Best exhibit.—W. H. Slinn.
Best and best dressed pair.—W. H. Slinn.

LIST OF MEMBERS.

ONTARIO HORSE BREEDERS' ASSOCIATION FOR 1912.

Through the Canadian Shire Horse Association.

Bennett, Jas. W., Lake View.
Breckon, J., Appleby.
Burr, J. F., Waubuno.
Elliott, T. D., Bolton.
Evans, W. J., Lawrence Station.
Fletcher, Jos., Oxford Mills.
Galbraith Bros., Orangeville.
Gardhouse, J. M., Weston.
Gardhouse & Sons, Highfield.
Hassard, T. H., Markham.
Hogate, J. B., Weston.
Mercer, T., Markdale.
Miller, A. A., Middlemarch.
Morris & Wellington, Fonthill.
Mossom, Boyd Co., Bobcaygeon.
McPhail, Hugh, Iona Station.
Parker, T., & Son, Camlachie.
Pearson, Wm., & Son, Hamilton.
Porter Bros., Appleby.
Semple, J. M., Hereward
Sexsmith, M. W., Ridgeway.
York, Darius R., Belhaven.

Through the Canadian Hackney Horse Society.

Allison, J. W., Morrisburg.
Allison, R. J., Chesterville.
Beith, Hon. Robert, Bowmanville.
Blacker, W., Brantford.
Boag, John A., & Son, Queensville.
Buie, Angus, Stayner.
Butler, W. E., Ingersoll.
Carruthers, J., Tillsonburg.
Dawson, Adam, Cannington.
Graham Bros., Claremont.
Graham Renfrew Co., Ltd., Bedford Park.
Gurney, C. W., & Sons, Paris.
Hassard, T. H., Markham.
Irving, T., Winchester.
Larkin, J. D., Queenston.
Mercer, Thos., Markdale.
Mitchell, Geo., Clarke.
Mossom Boyd Co., Bobcaygeon.
Murchison, J. R., Orillia.
McKay, —, Oakville.
McPherson, Dr. J. G., Toronto.
Smith, Jos. F., Ancaster.
Sorby, O., Guelph.
Stacey, G. E., Ottawa.
Thompson, J. R., Guelph.
Yeager, A., Simcoe.

Through the Canadian Thoroughbred Horse Society.

Burns & Sheppard, Simcoe St., Toronto.
Cook, G. W., Morrisburg.
Coventry, A., Sweaburg.
Davies, Robert, 30 Toronto St., Toronto.
Dyment, John, Barrie.
Hamilton Jockey Club, Hamilton.
Hendrie, Geo. M., Hamilton.
Hendrie (Estate of Wm.), Hamilton.
Livingston, Mrs. Lily A., Cobourg.
Lowes, W., Drayton.
Morrison, G. A., 1142 College St., Toronto.
McCrae, Lt.-Col. D., Guelph.
Palmer, J. C., Toronto.
Seagram, Jos. E., Waterloo.
Walker, Wm., Toronto.

Through the Canadian Standard Bred Society.

Allison, J. W., Morrisburg.
Ashby Stock Farm, Foxboro.
Brown, D., & Sons, Iona.
Clemons, Percy F., St. George.
Crow & Murray, Toronto.
Davies, Robert, Toronto.
Gardhouse, J. M., Weston.
Griffin, T. M., Kemptville.
Hammall, W., 51 Indian Road, Toronto.
Hepburn, B. R., Picton.
Hudgin, J., Picton.
Kerr, J. A., Perth.
Mabee, Chas. H., Tillsonburg.
Mara, E. N., Parkhill.
McBride, S., Toronto.
Patterson Bros., East Toronto.
Wilks, Miss K. L., Galt.

Through the Canadian Pony Society.

Adams, A. D., Brockville.
Beith, Hon. Robert, Bowmanville.
Cartmel, J., Brantford.
Fleming, R. J., Toronto.
Graham Renfrew Co., Bedford Park.
Lloyd-Jones, J., Burford.
Mercer, T., Markdale.
Miller, John, Jr., Ashburn.
Miller, Robert, Stouffville.
Mulock, Sir W., Armitage.
McCullough, P., Markdale.
Torance, J., Markham.

Through the Canadian Percheron Horse Association.

Armstrong, W. E., Jarvis.
Atkin, H., & Son, North Malden.
Beemer, Louis, Waterford.
Boulter, G. E., Picton.
Brown Bros., Colborne and Peterboro.
Eaid & Porter, Simcoe.
Elliott, T. D., Bolton.
Golden, A. J., Kingsville.
Hassard, T. H., Markham.
Hawthorne, John, Simcoe.
Hodgkinson & Tisdale, Beaverton.
Hogate, J. B., Weston.
Kidd, W. C., Listowel, Ltd., Listowel.
Miller, Wm., Cedar Springs.
McGarvin, P., Chatham.
Pears, Wm., West Toronto.
Ratz, A. E., Tavistock.
Renwick, J. G., & Sons, Romney.
Virgin, Charles, Dunmore.
Webb, W. J., Gananoque.
Wigle, E. J., Kingsville.
Wigle, L. P., Kingsville.

Through the Clydesdale Horse Association.

Adams, Albert and Morley, Brantford.
Airth, W. S., North Bruce.
Aitchison, John, Stratford.
Aitchison, John A., Inverhaugh.
Aitkin, James, Fergus.
Aker, Sidney, Port Rowan.
Alderson, Wm., Kintore.
Alexander, J. E., Thornbury.
Allan & VanCleave, Renfrew.
Alleyne, Arthur L. H., White Rose.
Allin, Thos., & Bros., Oshawa.
Alsop, Joseph, Glasgow.
Alton, A. P., Appleby.
Anderson, Duncan, Wingham.
Annett, W. B., Walnut.
Arbogast, John, Sebringville.
Arbogast, Peter, Sebringville.
Armstrong, Geo. A., Speedside.
Armstrong, John, Motherwell.
Armstrong, J. B., Orangeville.
Armstrong, J. F., Danforth.
Armstrong, J. H., Marathon.
Armstrong, L. H., Hagerman.
Armstrong, Robert, Strongville.
Armstrong, T. H., Kinburn.
Armstrong, Wm., Locust Hill.
Ashford, Jas., Ryckman's Corners.
Atkinson, E., Edgeley.
Atkinson, John, Fergus.
Attridge, G. A., Clachan.
Baker, Ira, Cainsville.
Baker, James, Chesterville.
Baker, Thos., & Son, Solina.
Baldwin, Chas., Hillsburg.
Balsdon, John I., Markham.
Baptie, James, Springville.
Barnett, Jos. W., Brooklin.
Barton, J. T., & Sons, Beeton.
Baston, Walter, Goodwood.
Beattie, Patten, Melbourne.
Beattie, W. R., Ennotville.
Beatty Bros., Berkeley.
Begg, W. A., Tiverton.
Beharrell, B. V., Frome.
Beith, Hon. Robert, Bowmanville.
Bell, Wm., St. Paul's Station.
Bennett, Adelbert, Edenvale.
Berry, Robert, & Sons, Berryland.
Berry, T. J., Hensall.
Black, John, Keady.
Black, John, Kilsyth.
Black, Wm., Seaforth.
Blackburn, Enos, Leaskdale.
Boag, John A., & Son, Queensville.
Borland, J. G., Claremont.
Botham, George, Bradford.
Bowes, T. T., Concord.
Bowman, James, Guelph.
Boyd, Geo. M., Owen Sound.
Boynton, P. W., & Son, Dollar.
Brackenridge, N. M., Wallace Point.
Brandon Bros., Forest.
Breadner, Robert, Rocklyn.
Breakey, J. Norton, Milliken.
Brent, Wm., Raglan.
Bright, John, Myrtle Station.
Broadfoot, A. & J., Seaforth.
Brock, Wm., Winchelsea.
Brodie, G. A., Bethesda.
Brown, James, Napier.
Brown, John, Galt.
Brown, L. A., Fergus.
Bruce, D. A., Tavistock.
Buchanan, Robert D., Wexford.
Bull, B. H., & Son, Brampton.
Burgess, W., Norwood.
Burgess, Wm., & Son, Wallaceburg.
Burkholder, Noah, Cherrywood.
Burkholder, Peter, Markham.
Burlingham, D., Wellington.
Burnett, Joseph, & Sons, Elgin Mills.
Burnett, W. R., Markdale.
Burr, John F., Waubuno.
Butler, Wm., Ingersoll.
Butler, Wm., Dereham Centre.
Butler, W. E., Ingersoll.
Cairns, Thos., Dublin.
Calder, J. B., Carluke.
Cameron, Colin, Etobicoke.
Campbell Bros., Alvinston.
Campbell, J. & D. J., Woodville.
Campbell, T. A., Smith's Falls.
Cargill, H., & Son, Cargill.
Carlyle, S. G., Chesterville.
Carmichael, Hector, Layton.
Carruthers, John, Mono Road.
Carson, Robert T., Newry.
Carstairs, Robert, Bomanton.
Cation Bros., Snelgrove.
Chapman, Matthew, & Son, Tavistock.
Charlton, E. W. & G., Duncrieff.
Chebott, Anthony, Elsinore.
Christie, Merwin, Utica.
Christie, Peter, Manchester.
Church, W. J., Arthur.
Clark Bros., Mount Brydges.
Clark, H. G., Georgetown.
Clark, J. L., Norval Station.
Clark, Robert, Carlingford.
Clark, W. H., Mount Brydges.
Clarkson, Robert, Malton.
Clayton, Geo., Peepabun.
Clemens, A. E., Tyrone.
Clifford, L. O., Oshawa.
Coad, Frank, Oakwood.
Coates, Geo. W., Claremont.
Coates, James, Shirley.
Coates, Leslie, Shirley.
Cochrane, Geo., Enfield.
Cockburn, W. L., Port Hope.
Cole, T. J. T., Tyrone.
Cole, W. R., Tyrone.
Colquhoun, Arthur, Gowrie.
Colquhoun, Wm., Mitchell.
Condy, Thos., Claremont.
Connell, James, Harriston.
Connor, John W., Grand Valley.
Cooke, Fred. B., Power Glen.
Cook, James, Myrtle.
Cooper, F. M., Claremont.
Cooper, H. C., Claremont.
Cooper, Wm., Fergus.
Cossins, Robert, Whitby.
Costello, Edward G., Downeyville.

Couperthwaite, John, Hagerman's Cors.
Coursey Bros., Lucan.
Coursey, T. & C. H., Lucan.
Cowan, W. J., Cannington.
Cowie, Geo. R., Mongolia.
Cowie, W. J., Locust Hill.
Cox, Robert, Amber.
Cox, T. A., Brantford.
Crake, R. H., Bradford.
Crawford, A. M., Thedford or Widder.
Crawford & McLachlan, Thedford.
Crawford, Geo., Oro Station.
Croll, James, Ramsayville.
Culbert, Wesley W., Saintsbury.
Cumming, Donald, Lancaster.
Cumming, Donald MacD., Russell.
Cundick, E. & B., Watford.
Cunning, Neil T., Eberts.
Currie, Chas., Morriston.
Dale, George & Sons, Seaforth.
Dalgety Bros., Glencoe.
Davey, J. Edgar, Leskard.
Davidson, Jas., Avonton.
Davidson, James I., Balsam.
Davidson, John, Ashburn.
Davidson, Geo., & Sons, Cherrywood.
Davies, Robert, Todmorden.
Davis, J. E. H., Taunton.
Dean, Alex., Mono Road.
De Geer, John Oakwood.
Devitt, S. A., Cadmus.
Dickieson, Richard, & Son, Ariss.
Dickson Bros., Atwood.
Digman, Wm. J., Whitby.
Dinsmore, G. W., Thornbury.
Dixon Bros., Maguire.
Dix, Wm. A., Fergus.
Doherty, Alex., Wexford.
Doherty, Chas., Castlemore.
Doherty, Wm., Agincourt.
Dougherty, John J., Beachburg.
Dougherty, Lorne R., Sandusk.
Douglas, Alex., Markham.
Douglas, Henry M., & Co., Stayner.
Downer, Wm., & Sons, Little Britain.
Downing, Herbert, Simcoe.
Drewery, Geo., Landerkin.
Drover, Wm., Chiselhurst.
Duff, Robert, Myrtle.
Duncan Bros., Shanty Bay.
Dundas, R. D., Springville.
Eadie, J. D., Vars.
Eadie, J. R., Russell.
Eaid, Chas. E., Simcoe.
Edwards, Joseph, Dalston.
Edwards, Wm., Saurin.
Edwards, W. C., & Co., Rockland.
Elliott, F. H., Coleman.
Elliott, T. D., Bolton.
Elliott, Wm., Galt.
Elmore, Edward, Ekfrid.
Elsom, Jno. F., Brooklin.
Empringham, J. W., Victoria Square.
Evans, James, Claremont.
Fair, Geo. A., Millbrook.
Faris, P. M., Bradford.
Farr, James, Newmarket.
Faulds, W. M., Muncey.
Ferguson, John D., & Sons, Mapleton.
Ferguson, Samuel, Conn.
Fierheller Bros., Mount Elgin.
Fines, Duncan, Coleraine.
Fitzgerald, C. B., Rebecca.
Fleming, A., Brown's Corners.
Fletcher, Geo. D., Binkham.
Forbes, Duncan, 20 Daly St., Stratford.
Forfar, A. W., Ellesmere.
Forgie, John, Claremont.
Forrest, John, Hills Green.
Forster, W. D., Markham.
Fountain, Silas, Headford.
Franklin, Frank, Shirley.
Fraser, A. A., Breadalbane.
Fraser, W. S., Bradford.
Freel, John C., Thamesford.
Frisby, A. E., O'Sullivan's Corners.
Fulton, S. R., Chesterville.
Garbutt, H. C., Lakefield.
Gardhouse, J. M., Weston.
Gaughan, Patrick, Brechin.
Gerber, John R., Wellesley.
Gerrie, W. G., Belwood.
Gibson, Edward, Claremont.
Gibson, Fred. W., Kinsale.
Gibson, John T., Clyde.
Giles, John, Christina.
Giles, Wm. H., Paisley.
Gillman, John L., Brougham.
Gleeson, James J., Markham.
Glendenning, Henry, & Son, Manilla.
Good, Levi, Greenock.
Goodfellow, Alex., Macville.
Gould, I. J., Jr., Uxbridge.
Gould, J. B., Markham.
Gracey, Armer, Fallowfield.
Graham Bros., Claremont.
Graham, D. M., Atha.
Graham, John, Derry West.
Graham, John, Fenelon Falls.
Graham, Malcolm, Fernhill.
Graham Renfrew Co., Ltd., Bedford Park.
Grant, Innes, Brooklin.
Gray, Joseph & William, Londesboro.
Gray, Wm., Mayfield.
Greenless, Hugh, Bowmanville.
Gregg, Thos., Claremont.
Greig Bros., Brougham.
Grigg, Chas., Allenwood.
Groat, Chas., Brooklin.
Grooms, W. W., Eberts.
Grummett, Geo., Maxwell.
Grundy, R., Clandeboye.
Guest, J. L., Fanshawe.
Guest, Richard L., Fanshawe.
Gundry, John, Vittoria.
Gunning, William, & Son, Talbotville.
Hadden, Geo., & Sons, Wick.
Hahn Bros., Hawkesville.
Hambly, W. E., Rockford.
Hamill, H. C., Box Grove.
Hamilton, Angus, Ravenshoe.
Hand, James, Tancred.
Hanlon, Henry, Rayside.
Hanlon, James, Ingersoll.
Hanson, Fred., Mitchell.
Harlock, Joseph, Whitby.
Harris, Leamon, Mount Elgin.
Harvey, T. B., Charing Cross.

Harwood, A. W., Hickson.
Hassard, Jack, Markham.
Hassard, T. H., Markham.
Hastings, David, Staffa.
Hastings, Edward, Almira.
Hastings Bros., Crosshill.
Heeney, F. V., Ingersoll.
Henders, R. J., Yelverton.
Henderson, Geo., Keady.
Henderson, James, Belton.
Henry, J. W., Thornton.
Herold, Philip, Tavistock.
Hewson, Matthew, Tullamore.
Hickling, Alfred, Edenvale.
Hill, David, Staffa.
Hill, William G., Queensville.
Hodgins, J. J., Hazeldean.
Hodgkinson & Tisdale, Beaverton.
Hogate, J. B., Weston.
Hogg, William, & Son, Thamesford.
Holman, Joseph W, Columbus.
Holmes, Wm., Otterville.
Holtby, R. M., Manchester.
Holtby, W. W., Manchester.
Hooey, John W., Cadmus.
Hoover, Eli, Mongolia.
Horne, J. R., Marsh Hill.
Hotson, Alex., Avonton.
Howard, W. J., & Son, Concord.
Howe, Wm., North Bruce.
Howitt, James, Altona.
Hueson, Ambrose, Brooklin.
Hughes, Rev. E. W., Tillsonburg.
Hulse, Henry, Newmarket.
Hummason, Fred., Embro.
Hyland, Wm., Essex.
Innes, Alex., Brooksdale.
Innes, Alex., Clinton.
Innes, Donald, Brooksdale.
Innes, James, Sonya.
Innes, James W., Woodstock.
Intzi, Samuel, Cassel.
Jackson, Geo., & Son, Downsview.
Jackson, Henry H., Glen Allan.
Jacob, Wm., Mitchell.
James, D. W., Blackwell.
Jamieson, A., Streetsville.
Jamieson, Geo. G., Fergus.
Jardine, Geo., Bond Head.
Jewell, W. E., Bowmanville.
Johnston, Geo. B., Cannington.
Johnston, H. W., Powle's Corners.
Johnston, James, Otterville.
Johnston, John, Woodbridge.
Johnston, J. R., Springford.
Johnston, Jno. S., Ravenshoe.
Johnston, L. James, Mitchell.
Johnston, Samuel, Trent River.
Jones, W. H., Balsam.
Kay, Samuel, Riverbank.
Kennedy, Wm., Nobleton.
Kent, A. L., Oakville.
Ker, W. H., St. George.
Kerr & Davidson, Balsam.
Kersey, Wm., Castlemore.
Kilgour, Joseph, Eglinton.
King, Frank, Fingerboard.
King, John W., Bluevale.
Kissock Samuel, Guthrie.
Kneeshaw, J., Bradford.
Knister, Elmer, Ruscom Station.
Lamont, Archie, Roome.
Lansdell, Fred., Humber.
Larkin, John D., Niagara-on-the-Lake.
Larkin, Mat, Lime Bank.
Lavin & Richardson, Harriston.
Law, Wm., & Son, Ringwood.
Lawrence, T. A., Thamesville.
Leask, Geo. A., Taunton.
Leask, James H., Seagrave.
Legge, T. H., Temperanceville.
Leham, A. B., Atha.
Leiper, James, Londesboro.
Leonard, James, Schomberg.
Ley, Geo., Don.
Lindsay, J. G., Brooksdale.
Lindsay, Wm. G., Oshawa.
Linton, Wm., Claremont.
Little, John A., Ilderton.
Little, John O., Mayfield.
Lougheed, H. P., Heathcote.
Lowe, Geo., Bear Brook.
Lowes, J. W., Bethany.
Lyle, Alex., & Sons, St. Thomas.
Lyons, Hiram, Dundas.
Lyons, Percy, Dundas.
Macfarlane, J. M., Sonya.
MacGillis, D. W., Bainsville.
MacLean, T. D., Ormond.
MacNeil, Neil, Walkers.
MacRae, James, & Son, Cedar Grove.
McAllister, Wm., Hills Green.
McAlpine, Angus A., Hale.
McBrien, H. W., Kinsale.
McCague, Geo. A., Victoria Square.
McCallum, W. J., & Bros., Brampton.
McCaugherty, D. H., Streetsville.
McClure, Geo., Newmarket.
McClure, Joseph, & Sons, Alloa.
McCort, Alex., Bolton.
McCullosh, Donald, Enfield.
McDiarmid, John, Lucknow.
McDiarmid, P. A., Alvinston.
McDougall, D. & A., Malton.
McDougall, Silas, Edgely.
McEachern, P. R., & Sons, Eldon Station.
McElheron, Neil, Chatsworth.
McEwen, John L., Wroxeter.
McEwen, Peter, Wroxeter.
McFarlane, James, Falkirk.
McFarlane, John, Dutton.
McGavin, Isaac, Leadbury.
McGavin, John J., Leadbury.
McGeachy, A. & D., Dutton.
McGhee, Wm., Beachville.
McGillawee, James, Stratford.
McGovern, Owen, Oxford Station.
McGowen, W. B., Marsville.
McGregor, Alex., Uxbridge.
McGregor, J. F., Wardsville.
McIntosh, Donald, Braemar.
McIntosh, John A., Duncrief.
McIntyre Bros., Totten.
McKay, Wm. B., Braemar.
McKee, Alex., Sandhill.
McKeigan, Colin, Strathroy.
McKenzie, Geo., Bolton.
McKenzie, John, Keward.

McKinnon, Alex., Hillsburg.
McKinnon, D., & Sons, Coningsby.
McKinnon, Neil E., Hillsburg.
McKinnon, Peter, Parkhill.
McLachlan, Neil, Ailsa Craig.
McLean, John, Aldboro.
McLellan, R. D., Metz.
McLevin, John, Woodstock.
McMichael, Garfield, Mitchell.
McMillan, John, North Keppel.
McMillan, R. J., Seaforth.
McNiven, Alex. F., St. Thomas.
McNiven, W. A. Ryckman's Corners.
McPhee, D. A., Vankleek Hill.
McPhee, H. H., Parkhill.
McPherson, Hugh, Embro.
McPherson, J. E., Thamesford.
McQuade, Geo. A., Omemee.
McQuillan, A., Guelph.
McQuillan, Wm., St. Helen's.
McRae, Dan. K., Strathburn.
McRae, Geo., Bainsville.
McTaggart, A., & Son, Appin.
McTaggart, John A., Sonya.
McTaggart, Wm., Appin.
McTavish, Alex., Shakespeare.
Maddaford Bros., Whitby.
Malcolm, James, Markham.
Maloney, Patrick, Granton.
Maloney, Patrick, Metropolitan.
Mancell, W. H., Fletcher.
Manning, John, Oshawa.
Mapes, Geo., Bondhead.
Martin, Thos. H., Duncrief.
Martin, Wm. R., Lucknow.
Mason, Alfred, L'Ameroux.
Mason, A. Charles, Ellesmere.
Mason, Leslie, L'Ameroux.
Maxwell, James, Locust Hill.
Maynard, John T., Brooklin.
Meadows, Chas. E., Maplewood.
Meharey, Wm., Russell.
Merriam, Norman, Chatsworth.
Meyer, Edward M., Cashel.
Millard, Joseph H., Altona.
Miller, A., & Sons, Arnprior.
Miller Bros., Brougham.
Miller, George, Blackheath.
Miller, John, McIntyre.
Miller, John J., Gowrie.
Miller, John, Jr., Ashburn.
Miller, Robert, Stouffville.
Milne, Alex., Markham.
Milne, James A., Fergus.
Milne, P. W., Don.
Milne, R., & Sons, Green River.
Misner, Judson, Jerseyville.
Mitchell, John, Tormore.
Mitchell, Robert, Coldstream.
Mitchell, Walter, Lindsay.
Moffatt, James, Teeswater.
Montague, N. C., Jarvis.
Montgomery, Geo. T., & Son, Nottawa.
Moore, Allan, Shirley.
Moore, Jonathan G., Mount Forest.
Morden Bros., Ridgetown.
Morgan, Duncan M., Claremont.
Morgan, S., L'Ameroux.
Morrison, Duncan, Elmvale.
Morrison, John D., Argyle.
Morrison, Wm., Brooklin.
Morrow, W. A., Russell.
Mossip, Wm., St. Mary's.
Mountjoy, Wesley, Blackstock.
Mowat, David, Merivale.
Mowder, Joseph, Altona.
Muldoon, J. E., Fallowfield.
Munro Bros., Inwood.
Murray, Alex., Palmerston.
Murray, John, Kinkora.
Murray, Wm., Embro.
Murray, Wm., Avonton.
Neal, James, Woodbridge.
Ness, W. J., Dollar.
Nichol, Robert, Brussels.
Nicholson, Chester, Mount Forest.
Nicol, Geo., Waubuno.
Noble, Geo., White Rose.
Norris & Hastings, Staffa.
Norris, James, Munro.
Norton, Wm. H., Brougham.
Noyes, Wm., Denfield.
Ogle, Ryerson, Blytheswood.
Oliver, Robert, Thedford.
O'Neil, Melvin, Southgate.
O'Neil, W. J., Arthur.
Ontario Agricultural College, Guelph.
Ormerod, W. C., Amber.
Ormiston, Wm., & Sons, Brooklin.
Orr, John, Galt.
O'Rourke, Patrick, Dublin.
Parkins, Wm., Jarvis.
Paton, James, Swinton Park.
Patrick, J. H., Ilderton.
Patterson Bros., Millbrook.
Patterson, Jas. S., Almonte.
Paul, John, Russell.
Peacock, J. T., Woodbridge.
Pearson, John, Danforth.
Peart, Samuel, Rockwood.
Pettigrew, Robert, Bright.
Pettit, Richard, Glenwillow.
Pettit, W. G., & Sons, Freeman.
Phoenix, Albert, Greenbank.
Pinhey, Horace C., March.
Pinkerton, R. B., Essex.
Pilkey, D., Balsam.
Pogue, Robert, Lindsay.
Porter, Wm., Marburg.
Potts, Oliver, Simcoe.
Preston, T. H. E., Bethany.
Prouse, Richard, Cannington.
Prouse, S. J., Ingersoll.
Prout, Geo., Cedar Brae.
Prout, Geo., Nestleton.
Pugh, W. D., Claremont.
Pugh, W. H., Claremont.
Purtill, James, La Salette.
Rae, Duncan A., Longwood.
Rae, Wm., Jr., St. Paul's.
Rae, Walter, St. Paul's Station.
Raikes, Geo., Barrie.
Ratcliffe Bros., Anderson.
Rawlings, Herbert, Ravenswood.
Redmond, S. F., Peterboro.
Rennie, Jas., & Sons, Blackwater.
Richardson, Alonza H. A., Hazeldean.
Richardson, R. H., South March.

Robertson, A. G., Shakespeare.
Robinson, Ed. W., Markham.
Robinson, Mrs. J. W., & Sons, St. Mary's.
Robinson, R. J., Ailsa Craig.
Robinson, Wm., Markham.
Roe, Richard A., Hawkestone.
Robson, Joseph, Vanneck.
Robson, R. S., & Son, Ailsa Craig.
Ross, Angus, Beaverton.
Ross Bros., Nairn.
Ross, J. C., Jarvis.
Rossiter, A., Crampton.
Rundle, Chas. R., Weston.
Russell, J. & W., Richmond Hill.
Rutherford, Dixon, Campbell's Cross.
Ryan, Caleb, Lucan.
Sanderson, Wm., Wroxeter.
Scharf, Adam, Cumming's Bridge.
Schell, M. & W., Woodstock.
Schrenk, Robert, Milverton.
Scott, Robert, Brussels.
Scott, Robert J., Brussels.
Scott, T., & Son, Sutton West.
Scott, Wm. G., Claremont.
Semple, Hugh, Hereward.
Semple, John, Milverton.
Semple, Robert, Beeton.
Shantz, Joshua M., Haysville.
Shellard, Morris, Galt.
Sherick, Daniel, & Son, Bethesda.
Shields, J. B., Mount Albert.
Shier, Silas N., Kirkton.
Sibbald, John, Leith.
Simpson, Thos., Glenrae.
Slack, James W., Glasgow.
Sleightholm, J. A., Humber.
Slimmon, Wm. W., Glen Allan.
Sloan, A. C., Bradford.
Sloan, Thos., King Creek.
Sloane, Arthur C., Bradford.
Smith & Richardson, Columbus.
Smith, A. W., Maple Lodge.
Smith, David, Carluke.
Smith, Frank W., Scotland.
Smith, H., Hay.
Smith, J. W., Stewart.
Smith, Neil, Brampton.
Smith, Robert B., Columbus.
Smith & Eadie, Vars.
Snyder, Wm. J., Mayfield.
Sorby, O., Guelph.
Spearin, Geo., Sr., St. Mary's.
Speers, Peter W., Bolton.
Spofford, R., Brougham.
Stainton, James A., Kintore.
Stanley, Norman, Pickering.
Stanley, W. J., Pickering.
Staples, J. F., Ida.
Stevenson, James, Melbourne.
Stevenson, Wm., Melbourne.
Stewart, James, Salem.
Stewart, John, Appleton.
Story Roberts & Son, Crossland.
Story, Wm., Bloomington.
Swain, J. C., Cavan.
Tarr, Nathan, Stouffville.
Taylor, Duncan, Hensall.
Taylor, James, Oakwood.
Taylor, L. W., Stayner.
Taylor, Wm., Walton.
Teefey, P., & Son, Cherrywood.
Thom, Alex., Morrisburg.
Thomas, E. W., Birnam.
Thompson, Geo. H., Farewell.
Thompson, Nathaniel, Orangeville.
Timmins, A. C., Winchester.
Torrance, James, Markham.
Touriss, C. A., Riverbank.
Tran, Geo. J., Mongolia.
Trathen, Wm. J., Caledon.
Turner, J. B., Stouffville.
Umphrey, W. H., Udora.
Vance, David, Tavistock.
Vance, John, Tavistock.
Van Nostrand, Geo. J., Vandorf.
Veale, John, Sr., Beaverton.
Vipond, John, Brooklin.
Vinters, Robert G., Comber.
Wagester, Wm., Tavistock.
Wagg, James, Stouffville.
Wagg, Nelson, Claremont.
Walden, John J., Lindsay.
Walden, T. H., Lindsay.
Walker, Geo., Stayner.
Wallace, J. H., North Gower.
Ward, Edwin, Greenbank.
Ward, F. H., Bethany.
Watson, Henry, Sprucedale.
Watson, John, Seagrave.
Watt, R. A. & J. A., Salem.
Watts, Thos., Holt.
Webb, James, Bond Head.
Webster, Albert E., Oakwood.
Webster, James, Lansing.
Webster, Wesley W., Lindsay.
Weitzel, John N., Cassel.
Weller, Albert, Zephyr.
Wells, J. H., Eversley.
Whyte, Geo. H., Clifford.
Wiggins, John, Oro Station.
Wilbur, Geo. L., Taunton.
Wilker, Peter, Tavistock.
Wilkin, W. G., Harriston.
Wilkinson, Angus, Sonya.
Wilkinson, Chas. B., Belgrave.
Wilkinson, Geo., Fanshawe.
Wilcox, Joseph, Stayner.
Williamson, Isaac, Toronto.
Wilson, Geo. T., Balsam.
Wilson, I. L., McGarry.
Wilson, Norman F., Cumberland.
Wood, James, Bradford.
Wood, R. T., Etobicoke.
Wood, Wm., Bradford.
Woodley, Wm., & Sons, Dundas.
Woods, James S., Mount Forest.
Wright, H. O., Caledonia.
Wright, Robert, Mount Joy.
Wright, Walter, Mount Joy.
Young, Wm., & Son, Mount Brydges.

DOMINION CATTLE BREEDERS' ASSOCIATION FOR 1911-1912.

Name and Address.	Breed.
Abbott, Fred., Harrietsville	Holstein-Friesian.
Adams, E. E., Ventnor	Ayrshire.
Adamson, Edgar, Streetsville	Holstein-Friesian.
Aitkin, James A., Glen Morris	Holstein-Friesian.
Aitkin, T. B., Teeswater	Hereford.
Algondale Farm, Cass Bridge	Ayrshire.
Alguire, Leslie, Berwick	Ayrshire.
Alton, H. E., Jr., Everton	
Amos, G., & Sons, Moffat	
Anderson, James, Glen Buell	Ayrshire.
Anderson, John J., Glen Buell	Ayrshire.
Anderson, George W., Rossmore	Holstein-Friesian.
Anderson, W. G., Glen Buell	Ayrshire.
Andrew, Geo., Kendall	Hereford.
Appell, George Mitchell	Ayrshire.
Arbuthnot, E. M., Felton	Ayrshire.
Archer, T., Jr., Warwick	Hereford.
Armstrong, A. A., Fergus	
Armstrong, C. H., Kinburn	Hereford.
Armstrong, Keith, Rosemont	Hereford.
Armstrong, H., Rosemont	Hereford.
Armstrong, M., Tillsonburg	Holstein-Friesian.
Armstrong, W., Locust Hill	Holstein-Friesian.
Armstrong, W. R., Locust Hill	Holstein-Friesian.
Armstrong, W. G., Burford.	Holstein-Friesian.
Ashworth, David A., Maple Grove	Ayrshire.
Ayles & McNeill, Dutton	Hereford.
Bachelor, Sam, Proton Station	Hereford.
Bagg, F. W., Downsview	Holstein-Friesian.
Bagg, H., Downsview	Holstein-Friesian.
Bagg, Thos., Weston	Holstein-Friesian.
Bailey, Arnott, Hagersville	Holstein-Friesian.
Bailey, B. C., Nober	Holstein-Friesian.
Bailey, W. J., Nober	Holstein-Friesian.
Baird, Chas., Jr., Motherwell	Holstein-Friesian.
Bald, W. J., Sebringville	Holstein-Friesian.
Baldwin, Geo. A., Dunnville	Holstein-Friesian.
Bales, J. C., Lansing	Holstein-Friesian.
Bales, O. D., Lansing	Holstein-Friesian.
Ballantyne, W. W., Stratford	Ayrshire.
Barber, Frank, Villa Nova	Holstein-Friesian.
Barber, Jas., St. Helen's	
Barnett, Jos., Curries'	Holstein-Friesian.
Barnett, Robt., Curries'	Holstein-Friesian.
Barr, B. R., Harrietsville	Holstein-Friesian.
Barron, Alex., Brantford	Holstein-Friesian.
Barton, M. John, & Son, Vankleek Hill	Ayrshire.
Bass, Wm. M., Newboro	Ayrshire.
Backner, Henry, Hawkesville	Holstein-Friesian.
Bedgood, Thos. E., McWilliam	Holstein-Friesian.
Begg, Jas., St. Thomas	Ayrshire.
Begg, Victor, Moose Creek	Ayrshire.
Begg, Wilbert L., Moose Creek	Ayrshire.
Begg, W., V.S., Vars	Ayrshire.
Bell, Wm., V.S., Vars	Ayrshire.
Benfield, G. H., Woodstock	Holstein-Friesian.
Benning, Jas., Williamstown	Ayrshire.
Bigelow, Samuel, Canning	Ayrshire.
Binnette, J. Fred., St. Anne de Prescott	Ayrshire.
Binnie, James, Erin	Aberdeen-Angus.
Black, J. Allen, Kingston	Ayrshire.
Blais, Adolphe, Glen Sandfield	Ayrshire.
Bland, W. J., Campbellford	Ayrshire.
Blane, J. T., Renfrew	Ayrshire.
Blayney, J. E., Lynnville	Holstein-Friesian.
Blow, J. A., Woodstock	Holstein-Friesian.
Boake, B. J., Downsview	Holstein-Friesian.
Bobier, E. M., Ingersoll	Holstein-Friesian.
Bobier, Joshua, Ingersoll	Holstein-Friesian.
Bogart, J. W., Morewood	Ayrshire.
Bollert, C. R., Tavistock	Holstein-Friesian.
Bollert, H., Tavistock	Holstein-Friesian.
Bowley, W. W., Napperton	Ayrshire.
Bowman, Jas., Guelph	Aberdeen-Angus.
Bowman, W. J., Ingersoll	Holstein-Friesian.
Bowser, H. E., Delta	Ayrshire.
Bowyer, C. W., Silver Hill	Holstein-Friesian.
Bowyer, W. A., Simcoe	Holstein-Friesian.
Boyd, John, Huntley	Hereford.
Boyd, Wm., Osgoode	Ayrshire.

Boyd, Mossom & Co., Bobcaygeon	Hereford.
Bradley, W. H., Lansdowne	Ayrshire.
Brawley, N. W., Beeton	Hereford.
Breakley, Wesley, Thornhill	Holstein-Friesian.
Brethour, J. E., Burford	Holstein-Friesian.
Brien & Son, E., Ridgetown	
Britton, Wm., Constance	Ayrshire.
Brock, R. B., Jarvis	Holstein-Friesian.
Brodie, James T., Gladstone	Holstein-Friesian.
Brookfield, R. T., Tillsonburg	Holstein-Friesian.
Brown, John, Oxford Centre	Holstein-Friesian.
Brown, J., & Sons, Galt	
Brown, John C., Stamford	Holstein-Friesian.
Brown, Jos., Mount Forest	Hereford.
Brown, R. H., Hartley	Ayrshire.
Brownsberger, Gideon, Markham	Holstein-Friesian.
Bryant, W. A., Cairngorm	Holstein-Friesian.
Buchanan, John, Elia	Aberdeen-Angus.
Buchanan & Son, J., Kerwood	Holstein-Friesian.
Buck, Nelson, Tyrell	Holstein-Friesian.
Buckerell, John, Beaconsfield	Holstein-Friesian.
Burr, Peter, Bloomfield	Holstein-Friesian.
Burrill, F. I., Holbrook	Holstein-Friesian.
Bursee, Percival, Oxford Centre	Ayrshire.
Burt, D., St. George	Holstein-Friesian.
Burt, J. W., & Sons, Coningsby	
Butler, Chas., St. Thomas	Holstein-Friesian.
Butler, Edwin, Norwich	Holstein-Friesian.
Butler, Wm., Dereham Centre	Holstein-Friesian.
Caledonia Springs Farm, Caledonia Springs	Ayrshire.
Callander, James, North Gower	Ayrshire.
Cameron, A., Howick, Que.	
Campbell, A. D., Dominionville	Holstein-Friesian.
Campbell, Daniel, Komoka	Holstein-Friesian.
Campbell, W. J., Golspie	
Campbell, D. A., Dunvegan	Ayrshire.
Campbell, David, Avonmore	Ayrshire.
Campbell, John, Dalmeny	Ayrshire.
Campbell, John (Estate of), Vankleek Hill	Ayrshire.
Campbell, John R., Dalkeith	Ayrshire.
Campbell, Peter, Russell	Ayrshire.
Canadian Pacific Ry., Caledonia Springs	
Canfield, Chas. V., Vandecar	Holstein-Friesian.
Carlisle, G. F., Newtonbrook	Holstein-Friesian.
Carlyle, W. J., Chesterville	Ayrshire.
Carr, Fred., St. Thomas	Holstein-Friesian.
Carscadden, Ford, Russell	Ayrshire.
Carter, G. E., Aylmer	Ayrshire.
Carter, Maynard, Aylmer	Ayrshire.
Cassidy, Wm., & Son, Chesterville	Ayrshire.
Caughell, D., Yarmouth Gardens	Holstein-Friesian.
Caughell, G. H., St. Thomas	Holstein-Friesian.
Caverley, Percy, Plainfield	Ayrshire.
Central Experimental Farm, Ottawa	Ayrshire.
Chambers, Edwin G., Fairfield Plains	Holstein-Friesian.
Chatterson, Elson E., Mohawk	Holstein-Friesian.
Cherry, W. H., Garnet	
Christie, Arthur, Melvin	Ayrshire.
Christie, D., & Son, Winchester	Ayrshire.
Chute, Wm. B., Vienna	Ayrshire.
City Dairy Co., Toronto	Ayrshire.
Clare, Herbert, Norwich	Holstein-Friesian.
Clark, Alexander, Brinston Corners	Ayrshire.
Clark, Richard, Henfryn	Holstein-Friesian.
Clark, R. C., Hammond	Ayrshire.
Clark, Wm., Meyersburg	Ayrshire.
Clarkson, Arthur W., Summerville	Holstein-Friesian.
Clarkson, Norman P., Summerville	Holstein-Friesian.
Clarkson, John, Summerville	Holstein-Friesian.
Cleland, Robt. A., Listowel	Holstein-Friesian.
Clement, Nelson, Vanessa	Holstein-Friesian.
Clemons, W. G., St. George	Holstein-Friesian.
Clemons, F. P., St. George	Holstein-Friesian.
Clendenan, A. C., Woodstock	Holstein-Friesian.
Clifford, L. O., Oshawa	Hereford.
Cline, John W., Boston	Holstein-Friesian.
Clute, Justice R. C., Toronto	Ayrshire.
Cockrane, R., Ayr	
Cohoe, D. B., New Durham	Holstein-Friesian.
Cohoe, D. P., New Durham	Holstein-Friesian.
Cohoe, J. H., New Durham	Holstein-Friesian.
Cohoe, W. J., New Durham	Holstein-Friesian.
Cohoon, Emerson, Harrietsville	Ayrshire.
Coke, Jas., Erin	Aberdeen-Angus.
Colborne Bros., Winchester	Ayrshire.
Colier Bros., Beachville	Ayrshire.

DOMINION CATTLE BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
Comfort, Albin M., Elcho	Ayrshire.
Connie, J. M., Fergus	
Connolly, Richard, Ingersoll	Holstein-Friesian.
Connolly, W. J., Arkona	Ayrshire.
Cook, B. G., Ingersoll	Holstein-Friesian.
Cooper, George, Willowdale	Holstein-Friesian.
Cooper, Wm., Hammond	Ayrshire.
Copeland, W., Cornwall	Ayrshire.
Corcoran, E. P., Warden, Que.	Ayrshire.
Cornwall, A. E., Norwich	Holstein-Friesian.
Couch, Wm., Putnam	Holstein-Friesian.
Covell, H. N., Lombardy	Ayrshire.
Cowie, Geo. R., Mongolia	Holstein-Friesian.
Cowie, W. J., Locust Hill	Holstein-Friesian.
Cowing, W. R., Innerkip	Holstein-Friesian.
Craig, Francis, Tweed	Ayrshire.
Crawford Bros., Brown's Corners	Ayrshire.
Creedmore, Chas., Sprucedale	Hereford.
Creighton, W. J. C., Hawley	Ayrshire.
Cryderman, F. S., Osnabruck Centre	Ayrshire.
Cudmore, Chas., Oshawa	Hereford.
Cumberland, Barlow, Port Hope	Ayrshire.
Cumming, A. J., Heckston	Ayrshire.
Cumming, Donald, Lancaster	Ayrshire.
Cumming, D., Russell	Ayrshire.
Culver, F. L., Waterford	Holstein-Friesian.
Culver, Lorne D., Waterford	Holstein-Friesian.
Cummings, Kenneth, Millgrove	Holstein-Friesian.
Currie, Jas. G., Ingersoll	Holstein-Friesian.
Cuthbert, G. F., Sweaburg	Holstein-Friesian.
Daniel, Charley, Verschoyle	Ayrshire.
Darby, C., Gourock	
Darragh, E. J., Pendleton	Ayrshire.
Day, M. L., Delta	Ayrshire.
Davis, G., & Son, Alton	Aberdeen-Angus.
Deatt, G. T., Dixie	Holstein-Friesian.
Decarrie, Chas. G., Dorval, Que.	
Deeks, John H., Dunbar	Ayrshire.
Deeks, Thomas L., Williamsburg	Ayrshire.
Deller, W. H., Norwich	Holstein-Friesian.
Dennis, Edgar, Armitage	Holstein-Friesian.
Dennis, George W., St. Thomas	Holstein-Friesian.
Dent, T. H., Woodstock	Holstein-Friesian.
Denyes, H. K., Foxboro	Ayrshire.
Detweiller, S. S., Preston	Holstein-Fresian.
Dewitt, Thos., Elliott	Hereford.
Dickeison, J., Rockwood	
Dickeison, W. J., Hespeler	
Dillon, Jacob, Ellisville	Ayrshire.
Dingwall, James, Williamstown	Ayrshire.
Donald, A. T., Burnbrae	Ayrshire.
Dougherty, R. E., Oxford Centre	Holstein-Friesian.
Douglas, John H., Warkworth	Ayrshire.
Douglas, W. J., Vankleek Hill	Ayrshire.
Douglas W. A., Tuscarora	
Downey, James, Fordwich	Hereford.
Drummond, Daniel, Ottawa	Ayrshire.
Duff, John, Rockwood	Gallaway.
Duncan, R. F., Carluke	
Dunkin, T. L., Norwich	Holstein-Friesian.
Dunn, Andrew, Ingersoll	Holstein-Friesian.
Dunseith, J. C., Stratford	Holstein-Friesian.
Durin, W. R., Lucknow	
Dwyer, L., Freelton	
Dyer, J. A., St. Catharines	Holstein-Friesian.
Dyke, C. R., Armitage	Holstein-Friesian.
Dyment, Hiram, Dundas	Holstein-Friesian.
Dyment, N., R. R. No. 2, Hamilton	Ayrshire.
Eadie, A. G., Vars	Ayrshire.
Eadie, D. J., Vars	Ayrshire.
Eadie, John R., Russell	Ayrshire.
Eastman, John W., Russell	Ayrshire.
Easton, E. H., Lyn	Ayrshire.
Ede, P. D., Oxford Centre	Holstein-Friesian.
Edmonson, Chris., Prescott	Holstein-Friesian.
Edwards, Anthony, Chatham	Ayrshire.
Edwards, Isaac, & Son, Beachville	Ayrshire.
Edwards, S. W., Watford	
Elford, Rev. James, Corinth	Ayrshire.
Elliott, W. F., Coleman	Holstein-Friesian.

Elliott, Geo. S., Tillsonburg	Holstein-Friesian.
Elliott, J. & J. G., Feversham	Hereford.
Elliott, W. R. & Sons, Guelph	
Ellis, Wm. G., Bedford Park	Holstein-Friesian.
Emmett, C. D., Southend	Holstein-Friesian.
Empey, Adam M., Springfield	Ayrshire.
Esseltine, Frank, Dereham Centre	Ayrshire.
Everett, L. A., Vittoria	Holstein-Friesian.
Eyre, H. E., Chantry	Ayrshire.
Fairbairn, T. L., Billing's Bridge	Ayrshire.
Farlinger, W. K., Morrisburg	Ayrshire.
Farr, Geo. E., Thistletown	Holstein-Friesian.
Ferguson, Fred. S., Inverary	Holstein-Friesian.
Ferguson, George A., Tillsonburg	Holstein-Friesian.
Ferguson, John Camlachie	Ayrshire.
Fetterly & Sons, Martin, Russell	Ayrshire.
Fidlin, Frank, Bookton	Holstein-Friesian.
Fierheller, C. D., Mt. Elgin	Holstein-Friesian.
Fierheller, E. E., Mt. Elgin	Holstein-Friesian.
File, A. J., (Dr.), Ameliasburg	Ayrshire.
Fisher, Samuel, Bruce Mines	Ayrshire.
Fisher, M. Vicars, Glanworth	Holstein-Friesian.
Flatt, D. C., Millgrove	Holstein-Friesian.
Flatt, J. I., Millgrove	Holstein-Friesian.
Fleming, Henry, Craigleith	Hereford.
Flintoff, William, Hamilton	Ayrshire.
Force, Ashton, Vandecar	Holstein-Friesian.
Forester, J. C., Oakville	Aberdeen-Angus.
Forget, J. W., Rev., Embrun	Ayrshire.
Fosburgh, W. H., Stockwell	Ayrshire.
Foster, E. J., Ingersoll	Holstein-Friesian.
Foster, Ed. P., Dundela	Ayrshire.
Foster, H. W., Scotland	Holstein-Friesian.
Fraser, Agnes, Weston	Holstein-Friesian.
French, Wm., Alma	Aberdeen-Angus.
Fry, C. C., Bright	Holstein-Friesian.
Fryer, Henry, Mohawk	Holstein-Friesian.
Furness, P. S., Oakville.	Holstein-Friesian.
Fursey, R. A., Guelph	
Fyles, F. B., Abercorn, Que.	Ayrshire.
Garrett, Alfred, Inverary	Holstein-Friesian.
George, E. O., Putnam	Holstein-Friesian.
George, W. W., Crampton	Holstein-Friesian.

Gibbons, W. T., Northcote	Ayrshire.
Gies, C. R., Heidelberg	Holstein-Friesian.
Gilbert, H. J., Dereham Centre	Holstein-Friesian.
Gillies, W., Robb	Hereford.
Gilroy, Joshua, Lyn	Ayrshire.
Gilmour, Bros., Rosemere, Que.	Ayrshire.
Glass, John W., Roxham. Que.	Ayrshire.
Gooderham, Gordon, Bedford Park	Holstein-Friesian.
Gordon, Hector, Howick, Que.	
Gough, Wm. H., Bloomfield	Holstein-Friesian.
Graham, D. A., Wanstead	
Grainger, Daniel, Creemore	Hereford.
Gregg, F. H., Salford	Holstein-Friesian.
Green, W. R. & Son, Oak Leaf	Ayrshire.
Grenzeback, W. H., Hickson	Ayrshire.
Grey Nuns, The, Ottawa	Ayrshire.
Griffin, F. J., Burgessville	Holstein-Friesian.
Grimsley, C., Bedford Park	Holstein-Friesian.
Guy, F. T., Darlington	Ayrshire.
Guy, S. W., Clarksburg	Hereford.
Hagar, Cecil W., Welland	Holstein-Friesian.
Hales & McNeil, Dutton	Hereford.
Haley, M. H., Springford	Holstein-Friesian.
Haley, M. L., Springford	Holstein-Friesian.
Hallman, A. C., Breslau	Holstein-Friesian.
Hamblen, John, Athens	Ayrshire.
Hamill, H. C., Box Grove	Ayrshire.
Hamilton, Geo., Guelph	Holstein-Friesian.
Hanmer, E. E., Norwich	Holstein-Friesian.
Hanmer, Willoughby, New Durham	Holstein-Friesian.
Harding, R. H., Thorndale	Holstein-Friesian.
Hardisty, A. C. W., Westfield	
Hare, John H., Rowena	Holstein-Friesian.
Hare, W. T., Aylmer	Ayrshire.
Harkin, Daniel, Fournier	Ayrshire.
Harris, Frank H., Mount Elgin	Ayrshire.
Harris, J. E., Colchester	Hereford.
Harrison, Frank, Mount Forest	Hereford.
Harrison, George, Kincardine	Holstein-Friesian.
Harrison, W. H., Mount Forest	Hereford.
Harrison, Jas E., Kincardine	Holstein-Friesian.
Harrison, Joshua, York Mills	Holstein-Friesian.
Hartley Miles, Norwich	Holstein-Friesian.

DOMINION CATTLE BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
Hartley, Stephen, Woodstock (R.R. No. 3)	Holstein-Friesian.
Hartley, Thos., Downsview	Holstein-Friesian.
Hartley, W. A., New Durham	Holstein-Friesian.
Haycock, John A., Ingersoll	Holstein-Friesian.
Heeney, Fred. V., Ingersoll	Holstein-Friesian.
Henderson, B. H., Morton	Ayrshire.
Hendy, Charles, Campbellford	Ayrshire.
Hensman, W. G., Essex	Ayrshire.
Herbst, Geo., Alsfeldt	Holstein-Friesian.
Herron, J. H., Norwich	Holstein-Friesian.
Hicks, F. R. Newton Brook	Holstein-Friesian.
High, Isaac W., South Cayuga	Holstein-Friesian.
Hill, George, Delaware	Ayrshire.
Hill, J. W., St. Thomas	Holstein-Friesian.
Hilliker, C. N., Burgessville	Holstein-Friesian.
Hilliker, E. D., Burgessville	Ayrshire.
Hiser, A. G., Comber	Ayrshire.
Hoare, Jacob, The Maples	Hereford.
Hoffman, D. B., Hawkesville	Holstein-Friesian.
Holland, Isaac, Brownsville	Holstein-Friesian.
Holtby, Benj., Belmont	Holstein-Friesian.
Holtby, R. M., Manchester	Holstein-Friesian.
Homer-Dixon, Mrs., Niagara Falls, South	Ayrshire.
Honey, S. J., Cherrywood	Holstein-Friesian.
Honey, R., Brickley	Holstein-Friesian.
Honsberger, A., Delmer	Holstein-Friesian.
Howe, E., Dorchester Station	Holstein-Friesian.
Howe, I. N., Crampton	Holstein-Friesian.
Howling, John C., New Dundee	Holstein-Friesian.
Hudson, James, Morton	Ayrshire.
Hudson, Joseph & Son, Lyn	Ayrshire.
Hughes, Edward, Zenda	Ayrshire.
Hughes, John H., Burgessville	Holstein-Friesian.
Hulet, A. E., Norwich	Holstein-Friesian.
Hume, Alex. & Son, Menie	Ayrshire.
Humphrey Herbert, Amberley	Holstein-Friesian.
Hunt, B. J., Ottawa (South)	Ayrshire.
Hunter, A. S., Durham	Hereford.
Hunter, David, Maxville	Ayrshire.
Hunter, J. & J., Durham	Hereford.
Hunter, D. J., Orangeville	Hereford.
Hunter, Robert & Sons, Maxville	Ayrshire.
Hunter, R., Sr., Maxville	Ayrshire.
Hunter, R. R., Maxville	Ayrshire.
Hunter, Wm., Maxville	Ayrshire.
Hunter, W. H. & Son, The Maples	Hereford.
Hunter, John D., Dunsford	Hereford.
Hunter, W. H., Mrs., The Maples	Hereford.
Hutchison, Alfred, Mt. Forest	Holstein-Friesian.
Hutchinson, L. W., Aurora	Ayrshire.
Imerson, C. J., Lyn	Ayrshire.
Inch, Frank, Strathroy	Ayrshire.
Inksetter, Robt., Copetown	Holstein-Friesian.
Ionson, Jas, Scarboro Jct.	Holstein-Friesian.
Irving, James, Ventnor	Ayrshire.
Irving, James D. A., Nilestown	Ayrshire.
Jackson, E. J. Teeswater	Aberdeen-Angus.
Jackson, John J., Portlaw	Hereford.
James, D. A., Nilestown	Ayrshire.
Jardine, J. W., Hamilton	Ayrshire.
Jardine, David S., Nelson	Holstein-Friesian.
Jerome, Holbert, Glanford	Holstein-Friesian.
Jickling, Walter, Listowel	Holstein-Friesian.
Johnson, A. A. Straffordville	Holstein-Friesian.
Johnson, Wm. H., Avon	Holstein-Friesian.
Johnston, Frank, Boston	Holstein-Friesian.
Johnston, B. C., Hespeler	Ayrshire.
Johnston, John A., Dungannon	Hereford.
Johnston, R. W., Boston	Holstein-Friesian.
Jones, F. H., Bowmanville	Holstein-Friesian.
Jull, George, Ranelagh	Holstein-Friesian.
Kaines, Alfred, Byron	Ayrshire.
Kaufman, J. C., Cassel	Holstein-Friesian.
Keith, John, Salem	
Kelly, Arthur, Vanessa	Holstein-Friesian.
Kelly, Byron, Kelvin	Holstein-Friesian.
Kelly, P. E., Clarkson	Holstein-Friesian.
Kelly, R. J., Tillsonburg	Holstein-Friesian.
Kennedy, A., Ayr	Holstein-Friesian.
Kennedy & Son, Vernon	Ayrshire.

Kennedy, Wm. Tillsonburg	Holstein-Friesian.
Ketcheson, Geo. A., Wallbridge	Ayrshire.
Kettle, C. C., Waterford	Holstein-Friesian.
Kilgour, J., Toronto	Holstein-Friesian.
Kinkade, D., Russell	Ayrshire.
Kinsey, Joseph, Doon	Ayrshire.
Kinsey, Owen, Bayham	Ayrshire.
Kitchen, D. D., Renton	Holstein-Friesian.
Kitchen, F. D., Renton	Holstein-Friesian.
Kitchen, S. G., St. George	Holstein-Friesian.
Kitchen, G. A., Wallbridge	Ayrshire.
Kittle, Samuel, Chesterville	Ayrshire.
Klock, Alonzo J., Aylmer	Ayrshire.
Knight, Joshua, Elginburg	Ayrshire.
Knox, John, Fenelon Falls	Ayrshire.
Knox, John, Millbank	Holstein-Friesian.
Krich, David, Stony Creek	Holstein-Friesian.
Kruegar, Chas. A., Hanover	Holstein-Friesian.
Kyle, Bros. Ayr	
Laidlaw, E. W. H., Aylmer	Holstein-Friesian.
Laidlaw, Geo. A., Aylmer	Holstein-Friesian.
Laidlaw, Lloyd K., Aylmer	Holstein-Friesian.
Lakeview Farm, Bronte	Holstein-Friesian.
Lambkin, W. L., Fordwich	Holstein-Friesian.
Lammiman, T. J., Curries'	Holstein-Friesian.
Larte, Henry, Speedside	
Laurie Bros., Malvern	Ayrshire.
Lawless, R., Thorold	Holstein-Friesian.
Leach, Robert, Watford	Hereford.
Leapford, Geo., Hopeville	Hereford.
Lear, F. L., Orland	Ayrshire.
Leask, Jas., Greenbank	
Lee, J. W., Simcoe	Holstein-Friesian.
Lee, R. S., Williamsford	Hereford.
Leeson, F., Aylmer	Holstein-Friesian.
Leeson, F. Arthur, Aylmer	Holstein-Friesian.
Legge, F. A., Jefferson	Holstein-Friesian.
Leitch, D., & Sons, Cornwall	Ayrshire.
Lemon, Wilbur, Lynden	Holstein-Friesian.
Lemon, Samuel, Lynden	Holstein-Friesian.
Leslie, Thos. L., Norval Station	Holstein-Friesian.
Lester, H. A., Burford	Holstein-Friesian.
Leusxler, Jacob, Cassel	Holstein-Friesian.
Lewis, Wm., Dunsford	Hereford.
Lindsay, Dr., Guelph	Hereford.
Lindsay, J. A., Fergus	Hereford.
Lipsit. L. H., Straffordville	Holstein-Friesian.
Little, Jas. D., Teeswater	Hereford.
Lloyd, Edwin A., Straffordville	Holstein-Friesian.
Lloyd, F. L., Newmarket	Holstein-Friesian.
Locke, John, Campbellford	Ayrshire.
Logan, H. Lorne, Brockville	Holstein-Friesian.
Logan, Robt. J., North Glanford	Holstein-Friesian.
Londry, R. M., Epping	Hereford.
Long, R. P., Listowel	Hereford.
Lorch, Albert, Elmira	Holstein-Friesian.
Loveless, R. M., Agincourt	Holstein-Friesian.
Lovering, J. A., Coldwater	Hereford.
Lowe, B. J., Bear Brook	Ayrshire.
Lowe, John, Elora	Aberdeen-Angus.
Lowe, Robert, Stratford	Ayrshire.
Lucas, G. W., Odessa	Holstein-Friesian.
Lyons, Harry, Berwick	Ayrshire.
MacFarlane, G. A., Preston Vale	Ayrshire.
MacGregor, Peter A., Felton	Ayrshire.
MacInnes, John D., Glenpayne	Ayrshire.
MacVicar Bros., Harrietsville	Ayrshire.
McArthur, J. & M. (Misses), North Lancaster	Ayrshire.
McAlister, R. St. Augustine	
McBain, D. C., St. Thomas	Holstein-Friesian.
McCaskell, Alexander, Barb	Ayrshire.
McCauley, W. H., Streetsville	Holstein-Friesian.
McConnell Bros., Luton	Ayrshire
McCormack, George, Rockton	Ayrshire.
McCormick, Chas. R., Rathe	Holstein-Friesian.
McCormick, James, Rockton	Ayrshire.
McCracken, Jas., Staples	Hereford.
McCrae, D., Guelph	Galloway.
McCrimmon, D. R., Lancaster	Holstein-Friesian.
McCubbin, John, Warwick	Ayrshire.
McDermitt, J. A. & P., Stayner	Hereford.
McDermitt, Alex., Avonmore	Holstein-Friesian.
McDonald, E. F., Picton	Ayrshire.
McDonald, John A., Jr., Williamstown	Ayrshire.
McDonald, Sam., Kirk Hill	Ayrshire.
McDonald, Hubert, Bloomfield	Holstein-Friesian.

DOMINION CATTLE BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
McDonald, W. J., Bobcaygeon	Hereford.
McDowell, M., Oxford Centre	Holstein-Friesian.
McElroy, W. A., Chesterville	Ayrshire.
McEwan, Wm. K., Hawthorne	Holstein-Friesian.
McEwing, A. W., Harlock	Aberdeen-Angus.
McFarlane, Geo. A., Balderson	Ayrshire.
McGhee, Robt., Beachville	Holstein-Friesian.
McGee, S. J., Beachville	Holstein-Friesian.
McGregor, Peter A., Felton	Ayrshire.
McGowan, Alexandria, Ravenna	Ayrshire.
McGugan, Neil, Frome	Holstein-Friesian.
McInnis, J. D., Glenpayne	Ayrshire.
McIntosh, G. S., Seaforth	Aberdeen-Angus.
McIntosh, Alex., Nudel Bush	Ayrshire.
McIntosh, Jas., Gourock	
McIntosh, Peter, Cass Bridge	Ayrshire.
McIntyre, D. C., Newington	Ayrshire.
McKay, Jas., Medina	Holstein-Friesian.
McKee, John, Norwich	Ayrshire.
McKee, H. & J., Norwich	Ayrshire.
McKenzie, Angus, Vankleek Hill	Ayrshire.
McKenzie, D. C., Strathcona	Hereford.
McKenzie, G. H., Thornhill	Holstein-Friesian.
McKenzie, John, Willowdale	Holstein-Friesian.
McKillican, J. A., Moose Creek	Ayrshire.
McKinnon, John, Chesley	Hereford.
McKinney, Alex, Erin	Aberdeen-Angus.
McLane, S. J., Harrisburg	Holstein-Friesian.
McLaren, P. S., McGarry	Ayrshire.
McLaughlin, P., Northfield	Ayrshire.
McLean, W. J., Elm Grove	Hereford.
McLennon, D. L., Grant's Corners	Ayrshire.
McLennon, John, Laggan	Ayrshire.
McLeod, John D., Moose Creek	Ayrshire.
McLeod, D. A., Brooksdale	Holstein-Friesian.
McMillan, Bros., Dunbar	Ayrshire.
McMillan, D. E., Laggan	Ayrshire.
McMillan, D. P., Alexandria	Ayrshire.
McMillan, George A., Greenbank	Ayrshire.
McNish, W. H., Lyn	Ayrshire.

Name and Address.	Breed.
McPhail, D., Wanstead	
McPherson, Wilson & Sons, Silverdale	Ayrshire.
McQueen, Robt., Courtland	Holstein-Friesian.
McQueen, T. W., Tillsonburg	Holstein-Friesian.
McQuot, James H., Vancamp	Ayrshire.
McRae, Kenneth, Vankleek Hill	Ayrshire.
Mackie, R. J., Oshawa	Hereford.
Macklin, S., Weston	Holstein-Friesian.
MacLean, W. F., Donlands	Ayrshire.
Macoun Charles, Campbellford	Ayrshire.
Main, A., Sheffield	Holstein-Friesian.
Mair, Jos., Dobbinton	Hereford.
Mair, T. & W., Peabody	Hereford.
Mallory, J. M., Bloomfield	Holstein-Friesian.
Mallough, J. A., Dungannon	Aberdeen-Angus.
Mann, Fred, Dundas	Holstein-Friesian.
Manderlie, Jas, Tyrrell	Holstein-Friesian.
Manning, J. R. & Son, Wales	Ayrshire.
Martin, R. B., Elmira	Holstein-Friesian.
Mason, Wallace H., Tyrrell	Holstein-Friesian.
Mason, Wm. E., Tyrrell	Holstein-Friesian.
Mather, Ormiston Weston	Holstein-Friesian.
Mathews, Wm. H., Listowel	Holstein-Friesian.
Maharey, Robert, Russell	Ayrshire.
Melick, Aaron, Smithville	Ayrshire.
Merrett, Paul, Beamsville	Holstein-Friesian.
Merrill, Cecil E., New Durham	Holstein-Friesian.
Merryweather, A., Bridgeburg	Ayrshire.
Metcalfe, Robert, Pakenham	Ayrshire.
Michener, Martin, Dunnville	Ayrshire.
Miller, Robt. J., Fonthill	Holstein-Friesian.
Mitchell Bros., Norham	Hereford.
Mitchell, Wm., Bainsville	Ayrshire.
Mittlefeldt, A., Elcho	Holstein-Friesian.
Mittlefeldt, Jas H., Elcho	Holstein-Friesian.
Monroe, Wm., Thorold	Holstein-Friesian.
Mode, C. D., Vankleek	Ayrshire.
Mongomery, Elgin, South Mountain	Ayrshire.
Montgomery, W. L., Gravel Hill	Ayrshire.
Montmorency, Geo. D., Woodstock	Holstein-Friesian.

Moore, Benj. L., Burgessville	Holstein-Friesian.
Moore, Samuel D., New Dublin	Ayrshire.
Moore, J. T., Sanford	Hereford.
Morden, A. A., Wellington	Ayrshire.
Morrison, J. A., Mount Elgin	Ayrshire.
Morrison, John R., Burnbrae	Ayrshire.
Morton, David, Hamilton	Ayrshire.
Mossom Boyd Co., Bobcaygeon	Hereford.
Motheral, Jas., Drumbo	Holstein-Friesian.
Moynihan, J., Don	Holstein-Friesian.
Munro, M. A. & Sons, North Lancaster	Ayrshire.
Murdock, W., Palmerston	Ayrshire.
Nancekivell, R., Sr., Ingersoll	Holstein-Friesian.
Neely, Geo. W., Dorchester	Holstein-Friesian.
Nelles, C. Duff, Boston	Holstein-Friesian.
Nelles, Lorne C., Boston	Holstein-Friesian.
Ness, D. T., Howick, Que.	
Ness, R. R., Howick, Que.	
Nevill, Cecil, Straffordville	Holstein-Friesian.
Newell, J. R., Crampton	Holstein-Friesian.
Newton, J. L., Chapman	Ayrshire.
Nichols, Jas. S., Beachville	Holstein-Friesian.
Nichols, Ira, Woodstock	Holstein-Friesian.
Nicholson, A., Lucknow	
Neice, H. J., Lowbanks	Ayrshire.
Nixon Howden, Ingersoll	Holstein-Friesian.
Nickle, H., Everton	
North, Geo., Guelph	Holstein-Friesian.
Northey, Felix, Fenelon Falls	Ayrshire.
Nurse, J. A., Tralee	Hereford.
O'Conner, Jeremiah, Campbellford	Ayrshire.
O'Neill Bros., Birr	Hereford.
Oddie, M. L. (Miss), Burnbrae	Ayrshire.
Oddie, Thos. M., Menie	Ayrshire.
Oke, F. W., Alvinston	
O'Neil Bros., Southgate	Hereford.
Oliver, Geo., Bright	Holstein-Friesian.
Oliver, Hon. Geo. T., Cobourg	Ayrshire.
Oliver, John, Campbellford	Ayrshire.
Oliver, Thos., Maple	Holstein-Friesian.
Ontario Agricultural College, Guelph	Ayrshire.
Owens, S. W., Antrim	Ayrshire.
Page, Jas, Tyrconnell	Hereford.

Palmer, B. J., New Durham	Holstein-Friesian.
Palmer, E. B., Norwich	Ayrshire.
Palmer, Geo. R., Summerstown	Ayrshire.
Palmer, J. J. & T. E., Schomberg	Hereford.
Park, Adam C., Listowel	Holstein-Friesian.
Park, H., Burford	Holstein-Friesian.
Parks, Thos. J., Orangeville	Hereford.
Parks, Samuel, Teeswater	Hereford.
Paisley, Jas., Mt. Elgin	Ayrshire.
Pallett, Geo. W., Summerville	Holstein-Friesian.
Parslow, T. H. & Sons, Spring Valley	Ayrshire. Holstein-Friesian.
Passmore, F. S., Brantford	Holstein-Friesian.
Paterson, W. A., Agincourt	Holstein-Friesian.
Paterson, A. L., Harriston	Holstein-Friesian.
Paterson, T. G., Rayside	Holstein-Friesian.
Patterson, H. F., Alford Jct.	Holstein-Friesian.
Patten, Walter, St. George	Hereford.
Patton, J. W., Blantyre	Hereford.
Patton, J. A., Rocklyn	Ayrshire.
Paul Bros., Crysler	Ayrshire.
Paul, W. J., Almonte	Holstein-Friesian.
Peacock, Grace F., Mt. Salem	Holstein-Friesian.
Pearce, Arthur, Cornell	Holstein-Friesian.
Pearce, Wm. M., Tillsonburg	Holstein-Friesian.
Pearce, C. J., Ostrander	Holstein-Friesian.
Pearce, Louis A., Springfield	Holstein-Friesian.
Pearce, Thos., Cornell	Holstein-Friesian.
Penhale, R. A., St. Thomas	Holstein-Friesian.
Penhale, R. J., Villa Nova	Hereford.
Peoples, James B., Preneveau	Ayrshire.
Percival, G. W., Glen Buell	Ayrshire.
Perdue, H. T., Wingham	Hereford.
Pettit, F. E., Burgessville	Holstein-Friesian.
Pinnegar, Luther, Dorchester Station	Ayrshire.
Pirie, Francis, Banner	Holstein-Friesian.
Pirie, James, Banner	Holstein-Friesian.
Poole, D. B., Dundas	Holstein-Friesian.
Poole, Samuel, Norwich	Holstein-Friesian.
Poole, W. B., Salford	Holstein-Friesian.
Poole, Chancey, Norwich	Holstein-Friesian.
Porteous, D. W., Ormond	Ayrshire.
Pound, Wm. F., Aylmer	Holstein-Friesian.

DOMINION CATTLE BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
Powell, W., Ancaster	
Prichard Bros., Fergus	
Prouse, G. T., Ostrander	Holstein-Friesian.
Prouse, Thos., Dereham Centre	Holstein-Friesian.
Prouse, Wilbur C., Ostrander	Holstein-Friesian.
Prouse, Wm., Dereham Centre	Holstein-Friesian.
Randall, Jas. & Sons, Highgate	Hereford.
Raymond, Jas, Ingersoll	Holstein-Friesian.
Rankin, Daniel, Wanstead	Ayrshire.
Rannie, Wm., Menie	Ayrshire.
Readhead, W., Lowville	Hereford.
Reed, H., Mimosa	Hereford.
Reed, Isaac, Ardtrea	Ayrshire.
Reesor, F. A., Locust Hill	Holstein-Friesian.
Reid, H. J., Epping	Hereford.
Reid, Wm., Murillo	Ayrshire.
Rennick, G. M., Vankleek Hill	Ayrshire.
Rettie, Jas., Norwich	Holstein-Friesian.
Rice, Alfred, Curries	Holstein-Friesian.
Rice, George, Tillsonburg	Holstein-Friesian.
Richardson, Fred. & Son, Columbus	Ayrshire.
Richardson, J. W., Caledonia	Holstein-Friesian.
Riddell, John A., Pittston	Ayrshire.
Rife, David, Hespeler	Holstein-Friesian.
Rife, W. A., Hespeler	Holstein-Friesian.
Richardson, M., Caledonia	Holstein-Friesian.
Riley, W. A., Emery	Holstein-Friesian.
Ritchie, —., Saurin	Hereford.
Rivers, Walburn, Folden's	Holstein-Friesian.
Robb, G. B., Sheffield	Holstein-Friesian.
Robbins, C. B., River Bend	Holstein-Friesian.
Robertson, Bros., Spencerville	Ayrshire.
Robertson, David (M.D.), Milton	Holstein-Friesian.
Robertson, W. H., Almonte	Ayrshire.
Roblin, W. H. C., Ameliasburg	Ayrshire.
Robinson, A. E., Markham	Holstein-Friesian.
Robson & Fried, Roseville	
Rogers, A. S., Sparta	Holstein-Friesian.
Rooke, Geo., Dereham	Holstein-Friesian.
Roseburgh, Harry, St. George	Holstein-Friesian.
Ross, James B., Streestville	Ayrshire.
Ross & Mackenzie, Nairn	Hereford.
Rothwell B., Ottawa	Ayrshire.
Row, Fred., Curries'	Holstein-Friesian.
Rowse, Jas. C., Crampton	Holstein-Friesian.
Ruby, Elias, Burgessville	Holstein-Friesian.
Ryder, John F. Hartley	Holstein-Friesian.
Sackrider, Roy, Burgessville	Holstein-Friesian.
Sager, Lawrence, Troy	Holstein-Friesian.
Sager, N. P., Troy	Holstein-Friesian.
Sager, Wellington, Troy	Holstein-Friesian.
Sandilands, John, Williamstown	Ayrshire.
Saunders, Albert. Sykeston	Ayrshire.
Scamar, —., Charing Cross	Hereford.
Scatcherd, Edwin, Wyton	Holstein-Friesian.
Schiefle, A. W., Heidelberg	Holstein-Friesian.
Schell, M. S., Woodstock	Holstein-Friesian.
Schell, Walter S., Woodstock	Holstein-Friesian.
Schwartzentruber, Jos. K., Baden	Holstein-Friesian.
Scott, John, Innerkip	Ayrshire.
Sexsmith, M. W., Ridgeway	Ayrshire.
Shantz, Daniel, Berlin	Holstein-Friesian.
Shantz, M. M., Berlin	Holstein-Friesian.
Shantz, Moses B., Berlin (R.R. No. 3)	Holstein-Friesian.
Sharp, J., Guelph	Ayrshire.
Sharp, Jas., Rockside	Hereford.
Shaver, C. H., Davisville	Holstein-Friesian.
Shaw, Robert, Brantford	Galloway.
Shearer, W. C., Bright	Holstein-Friesian.
Shearer, W. S., Listowel	Holstein-Friesian.
Shellington, Robt., Harley	Holstein-Friesian.
Shineff, Wm. & G. G., Clarence	Ayrshire.
Shunk, Wm. (Honorary), Sherwood	Holstein-Friesian.
Shuttleworth, H. P., Ingersoll	Holstein-Friesian.
Sifton, Chas., Cairngorm	Ayrshire.
Simmons, W. H., New Durham	Holstein-Friesian.
Simpson, James, South Augusta	Ayrshire.
Simpson, James, Moffatt	
Sinclair, Thos., Brigden	Hereford.
Siple, R. A., Burgessville	Ayrshire.

Skeppon, Thomas, Hyde Park	Hereford.
Slaght, Wm., Bealton	Holstein-Friesian.
Slater, Wm., Galt	Ayrshire.
Sloper, William, Cobourg	Ayrshire.
Smiley, S. H., St. Thomas	Holstein-Friesian.
Smith, A. E., Millgrove	Holstein-Friesian.
Smith, C. E. Scotland	Holstein-Friesian.
Smith, G. W., Dundas	Holstein-Friesian.
Smith, H. D., Hamilton	Hereford.
Smith, L. P., Vars	Ayrshire.
Smith, Robt., Millgrove	Holstein-Friesian.
Smith, R. J. A., Fairfield Plains	Ayrshire.
Smith, Wm. C., Burgessville	Holstein-Friesian.
Smith, Ozro, Tyrrell	Holstein-Friesian.
Snider, Elias, Burgessville	Holstein-Friesian.
Somers, John, Rockford	Holstein-Friesian.
Stansell, J. L., Tillsonburg	Ayrshire.
Stark, J. H., Lang	Ayrshire.
Steacy, R. G., Lyn	Ayrshire.
Stechley, Nicholas, Wellesley	Holstein-Friesian.
Steele, W. J., Newington	Ayrshire.
Stephen, Byron, Brigden	Holstein-Friesian.
Stevenson, H. H., St. Mary's	Hereford.
Stewardson, Wm., Vienna	Ayrshire.
Stewart, A. M. & Sons, Dalmeny	Ayrshire.
Stewart, Fred, Elfrida	Holstein-Friesian.
Stewart, James A., Sr., Menie	Ayrshire.
Stewart, M. A., Streetsville	Holstein-Friesian.
Stewart, W., & Son, Menie	Ayrshire.
Stewart, P., Everton	
Stokes, Geo. H., Tweed	Ayrshire.
Stone, Alfred, Guelph	Hereford.
Stone, J., Saintfield	
Strobridge, Frank, Thamesford	Holstein-Friesian.
Stroud, Thos., Tillsonburg	Holstein-Friesian.
Stutt, R. W., Forest	Hereford.
Stutt, W., Forest	Hereford.
Suddaby, Milton, Heckston	Ayrshire.
Suhring, Otto, Sebringville	Holstein-Friesian.
Suhring, Wm., Sebringville	Holstein-Friesian.
Sullivan, Chas. D., Jarratt	Hereford.
Sutcliffe, Wm., Aberarder	Ayrshire.
Swance B., Tillsonburg	Holstein-Friesian.
Tackell, Wm., Holbrook	Holstein-Friesian.
Talbot, D. & Son, Everton	
Tapley, W. F., Norwich	Holstein-Friesian.
Taylor, F. W., Wellman's Corners	Ayrshire.
Taylor, J. H., Scotland	Holstein-Friesian.
Taylor, John J., Cassburn	Ayrshire.
Taylor, John S., St. Eugene	Ayrshire.
Teeft, Thaddeus N., Smithville	Ayrshire.
Teeple, A. H., Curries'	Holstein-Friesian.
Telfer, Thos. G., Ingersoll	Holstein-Friesian.
Telfer, John B., Milton	Galloway.
Taylor, Lloyd, Scotland	Holstein-Friesian.
Thompson, John, Menie	Ayrshire.
Thompson, Wm. E., Woodstock	Holstein-Friesian.
Thorn, Wm., Lynedoch	Ayrshire.
Thornton, W. B., Sweaburg	Holstein-Friesian.
Thurston, R. E., Bobcaygeon	Hereford.
Tindale, J. J., Shelburne	Hereford.
Tinkess, S. M., Avonmore	Holstein-Friesian.
Tomkins, B. A., Heckston	Ayrshire.
Toms, Fred. A., Simcoe	Ayrshire.
Touchette, Esdras, St. Anne de Prescott	Ayrshire.
Tran, W. H & Son, Locust Hill	Ayrshire.
Tree, Ezekiel, Woodstock	Holstein-Friesian.
Treffry, W. J., Hawtrey	Holstein-Friesian.
Tretheway Model Farm, The, Weston	Ayrshire.
Trotter, R. W. M. D., Waterford	Holstein-Friesian.
Tummon, W. E., Crookston	Ayrshire.
Turner, A. S. & Son, Ryckman's Corners	Ayrshire.
Tweedie, Robt., Whitevale	Ayrshire.
Van Patter, J. M., Aylmer (R.R. No. 1)	Holstein.
Varcoe, John, Carlow	Aberdeen-Angus.
Wagler, C., Baden	Holstein-Friesian.
Walker, A. T., Beaconsfield, Que.	Holstein-Friesian.
Walker, R. W., Utica	Holstein-Friesian.
Walker, C. E., Norwich	Holstein-Friesian.
Walker, Thos., Jr.,Wellman's Corners	Ayrshire.
Walker, Wm. J., Winchester	Ayrshire.
Walker, Wm., Ashford, Sask.	Holstein-Friesian.
Wallace, J. Alec., Simcoe	Holstein-Friesian.
Wallace, W. A., Kars	
Wallace, Oswald, Burgessville	Holstein-Friesian.
Walter, Herbert, South Mountain	Ayrshire.

DOMINION CATTLE BREEDERS' ASSOCIATION, 1911-1912.—*Concluded.*

Name and Address.	Breed.
Ward, R. G., Springvale	Holstein-Friesian.
Wardell, W. E., Middlemarch	Holstein-Friesian.
Waring, J. E., Newark	Holstein-Friesian.
Warnica, Asa P., Painswick	Holstein-Friesian.
Watson, George, Leonard	Ayrshire.
Watson, W. R. M. D., Burlington	Holstein-Friesian.
Watson, Arthur, Middlemarch	Holstein-Friesian.
Watson, Wm., Hammond	Ayrshire.
Watson, T. & J., Proton Station	Hereford.
Watt, Alexander, Lancaster	Ayrshire.
Watt, J. & Son, Salem	
Weaver, Roy H., Norwich	Holstein-Friesian.
Webb, C. W., Pittston	Ayrshire.
Webster, H. O., Bowell	Ayrshire.
Welsh, Henry Weston	Holstein-Friesian.
Wereley, W. A., Aultsville	Ayrshire.
White, Homer, Bloomfield	Ayrshire.
White, W. A., Oakdale	Hereford.
White, P., Pembroke	Shorthorn.
Whitteker H. J. & Son, Williamsburg	Ayrshire.
Wight, Frank A., Widder	Ayrshire.
Willis, R., Aylmer	Holstein-Friesian.
Wilson, David, Lakehurst	Ayrshire.
Wilson, J. Lockie, Toronto	Ayrshire.
Wilson, E. P., Waterford	Holstein-Friesian.
Wilson, John, Simcoe	Ayrshire.
Wilson, O. M., Springford	Holstein-Friesian.

Name and Address.	Breed.
Wilmot, Bell, Staples	Hereford.
Wood, Hector, Crookston	Ayrshire.
Wood, Tig, Mitchell	Holstein-Friesian.
Wood, A. R., Fergus	
Woods, John G., New Hamburg	Holstein-Friesian.
Wooddisse Bros., Rothsay	Ayrshire.
Woodley, Elmer V., Waterford	Holstein-Friesian.
Woodley, Fred. V., Boston	Holstein-Friesian.
Woodley, Geo. L., Villa Nova	Holstein-Fresian.
Wooley, D. McF., Simcoe	Ayrshire.
Woods, John G., Tavistock	Holstein-Friesian.
Woodward, John & Son, Wheeler	Hereford.
Wright, Frank A., Thedford	Ayrshire.
Wright, D., Ponsonby	
Wright, Elmer T., Shanly	Ayrshire.
Wyckoff, D. J., Newark	Holstein-Friesian.
Wyckoff, I. G., Tyrrell	Holstein-Friesian.
Yarington, T. C., Princeton	Holstein-Friesian.
Yates, Mahlon, Athens	Ayrshire.
Yates, Philip F., Athens	Ayrshire.
Youmans, Hayes, Tyrrell	Holstein-Friesian.
Young, A., Glanford	
Yuill, J. & Sons, Carleton Place	Ayrshire.
Yuill, A. C., Carleton Place	Ayrshire.
Zehr, Christian S., Wellesley	Holstein-Friesian.
Zoeller, A. M., New Hamburg	Holstein-Friesian.

MEMBERS OF THE DOMINION SHEEP BREEDERS' ASSOCIATION, 1911 AND 1912.

Agricultural College, Guelph	
Aitkin, A. C., Duncans, B.C.	Southdowns.
Alison, Wm., Deloraine, Man.	Shropshires.
Allard, Mandoza, St. Esprit, Que.	Leicesters.
Allen Bros., Newcastle	Leicesters.
Allison, Geo., Burnbank, Man.	Leicesters.
Andrews, Geo., Millfield, Que.	Leicesters.
Arkell, Henry, & Sons, Arkell	Oxfords & Hampshires.
Arkell, Peter, & Sons, Teeswater.	
Arkell, W. H., Teeswater	Oxfords.

Armstrong, G. B., Teeswater	Leicesters.
Armstrong, Jas., Shawville, Que.	Oxfords.
Bailey, A. D., Skowhegan, Mich., U.S.A.	Suffolks.
Bailey, H. C., Cookshire, Que.	Shropshires.
Baker, G., Burford	
Baker, T., & Sons, Solina	Shropshires.
Baldwin, H. E., Coaticook, Que.	Leicesters.
Barber, J., Salem	
Beattie, W. H., Wilton Grove	Shropshires.
Bell Bros., Gormley	Shropshires.

Bell, J. J., Islay, Alta	Suffolks.
Bellemare, A., Yamachiche, Que.	Leicesters.
Bellerose, Delphis, Ste. Elizabeth, Que.	
Benham, J., Everton	
Bennett, F. G., Canterbury, Que.	Oxfords.
Bergeron, A., St. Pie Bagot, Que.	Leicesters.
Bernard, F., St. Bazile le Grand, Que.	Cotswolds.
Bertrand, Benj., Cote Ste. Hermas, Que.	Shropshires.
Besner, O. H., Port Chateau, Que.	Shropshires.
Black, H. C., Thornton	Shropshires.
Blackburn, Thos. M., Kettleby	Shropshires.
Blain, Jas. R., Loring	
Bourassa, T., Yamachiche, Que.	
Boswell, Geo. L., French Fort, P.E.I.	Shropshires.
Bourne, R. G., Perth	Oxfords.
Boutet, Jos., Victoriaville, Que.	
Bowman, Jas., Guelph	Suffolks.
Bradley, L. J., Beech Ridge, Que.	Shropshires.
Bray, Jas., Portage La Prairie, Man.	Oxfords.
Bredt, P. M., Regina, Sask.	
Brien, E., & Sons, Ridgetown	
Brodeur, J. P., St. Cesaire, Que.	Cotswolds.
Bryson, Jas., Brysonville, Que.	
Burton, E., Milby, Que.	
Bryant, W. A., Cairngorm	
Calder, H. A., Strathcona, Alta	Shropshires.
Cameron, Hugh, Sissiboo Falls, N.S.	Shropshires.
Campbell, D. J., Woodville	
Campbell, John, Woodville	
Campbell, J. H., & Son, Thedford	
Campbell, P. J., Breadalbane, Que.	Leicesters.
Carrier, Eugene, Notre Dame de Levis, Que.	Leicesters.
Carter, T. E., Bathurst, N.B.	
Central Experiment Farm, Ottawa	
Cerswell, J. A., Bond Head	
Chandler, H. B., Southey, Sask.	Shropshires.
Chapman, J. A., Hayfield Sta., Man.	Dorset Horns.
Charlebois, J., Vaudreuil Station, Que.	Oxfords.
Christie, Peter, Manchester	Shropshires.
Circle Agricole, St. Epiphane, Que.	Leicesters.
Clark, L. G., Alton	Shropshires.
Cleghorn, J. G., Hillburn, Sask.	Leicesters.
Cleland, J. R., **Genoa, Que.**	**Leicesters & Oxfords.**
Clement, Jos., St. Esprit, Que.	
Cloutier, J., Riviere Aux Chiens, Que.	Leicesters.
Cogswell, W., Centreville, N.B.	Cotswolds.
Comtois, Gaspard, St. Barthelemi, Que.	Shropshires.
Cooper & Nephews, Toronto	Shropshires.
Cote, Hylas, St. Hugues, Que.	Cotswolds.
Cote, R., L'Ange Gardien, Que.	Leicesters.
Cousin, J., & Son, Harriston	Cotswolds.
Coutie, P., St. Felix Valois, Que.	
Couture, Francis, St. Augustine, Que.	
Couture, Henri, St. Augustine, Que.	
Couture, Dr. J. A., Quebec, Que.	
Couture, Jos., Lorette, Que.	Leicesters.
Cowieson, J. B, Queensville	
Cox, T. A., Brantford	Shropshires.
Crews, W. H., Trenton	Shropshires.
Cudmore, W. T., Ridgetown	
Cumming, W., Carman, Man.	
Daignault, Nap., St. Thomas d'Aquin, Que.	Cotswolds.
Dauphin, Alph., St. Norbert (Berthier), Que.	
Dawson, J. F., Odessa	Shropshires.
Dean, Geo. K., Shelbyville, Mich., U.S.A.	Suffolks.
Denis, Armand, St. Cuthbert, Que.	Oxfords.
Denis, Arsene, St. Norbert Station, Que.	
Dennis, E., Newmarket	Oxfords.
Descoteaux, J. F., St. Monique, Que.	Shropshires.
Dickner, F., Notre Dame du Portage, Que.	Shropshires.
Dillon, Jacob, Ellisville	Shropshires.
Dorkin, Chas. A., Vittoria	
Dorrance, Jas., Seaforth	Leicesters.
Douglas, Jas., Caledonia	
Drew, J. A., Beech Ridge, Que.	Leicesters.
Dryden, W. A., Brooklin	Shropshires.
Dubs, Geo. A., Rodney	Cotswolds.
Dunn, Thos. D., River Beaudette, Que.	Leicesters.
Dupre, Wilfrid, Vercheres, Que.	
Dupuis, Wilfrid, St. Paul L'Ermite, Que.	Leicesters.
Dyer, W. D., Columbus	Shropshires.
Dykes, J., St. Lambert, Que.	Oxfords.
Easton, R. & W., Paris	
Edwards, G. B., Covey Hill, Que.	Leicesters.
Ficht, J. P., Oriel	Cotswolds.
Fisher, Hon. Sidney, Ottawa	Shropshires.

DOMINION SHEEP BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
Fletcher, J., Huchins' Corners	Shropshires.
Fontaine, F., Notre Dame de Stanbridge, Que.	Leicesters.
Fortier, Paul, St. Pierre Baptiste, Que.	Leicesters.
Fortin, J. C., Baie St. Paul, Que.	Leicesters.
Foster Farm, Oakville	Dorset Horns.
Fournier, Auguste, St. Philemon, Que.	Leicesters.
Frank, R. W., Kingsbury, Que.	Leicesters.
Frechette, J., St. Felix de Valois, Que.	Cotswolds.
Gagnon, Timothe, St. Arsene, Que.	
Garceau, G., Three Rivers, Que.	
Gardhouse, John, & Sons, Highfield	Lincolns.
Gardhouse, J. M., Weston	Leicesters.
Gareau, J. J., St. Roch l'Achigan, Que.	
Gaucher, A., St. Damase, Que.	Cotswolds.
Gibson, J. T., Denfield	
Gibson, W. H., Beaconsfield, Que.	
Gladu, Hermidas, St. Brigide d'Iberville, Que.	Leicesters.
Goff, H. F., Cookshire, Que.	Cheviots.
Goodall, Wm., St. Louis de Gonzaque, Que.	
Gosnell, J. S., & Son, Ridgetown	
Gouin, Aime, St. Norbert, Que.	Leicesters.
Gourlay, Jas., Carp.	Cotswolds.
Graham, D. A., Wanstead	
Grandby, R. C., Springville	Shropshires.
Gurney, C. W., Paris	Shropshires.
Hadwin, G. H., Duncan's, B.C.	Shropshires.
Hall, J. W., Bensfort	Leicesters.
Hall, Thos., Bradford	
Hamilton, C. W., Spanish	
Hanmer & Hodgson, Brantford	
Hanmer, J. G., Burford	Shropshires.
Harding, R. H., Thorndale	
Harman, K. E., Pulaski, Va., U.S.A.	Suffolks.
Hay Bros., Duthill	Oxfords.
Henderson, D., Amberley	Shropshires.
Hindmarsh, Geo., Ailsa Craig	
Hodgins, L. E., Shawville, Que.	Leicesters.
Hodgson, C., Brantford	South Downs.
Hunter, John, Alma	Leicesters.
Ingram, Thos., Manitowaning	Cotswolds.
Innes, Donald, Tobique River, N.B.	Cotswolds.
Ionson, Jas., Jarvis	South Downs.
Irving, A., Scotstown, Que.	Leicesters.
Jackson, Austin, Mineral Springs, N.Y.	Suffolks.
Jackson, J., Abingdon	
Jacques Bros., Lamerton, Alta.	Suffolks.
Jasper, I., Harding, Man.	Leicesters.
Johnson, D., Appin	
Johnston Bros., Underwood	
Joynt, S., Merrickville	Leicesters.
Kelly, John, Shakespeare	
Kerr, R., Riverfield, Que.	Dorset Horns.
King, J. H., Smith's Creek, N.B.	Shropshires.
Lachapelle, Edmond, St. Paul l'Ermite, Que.	Cotswolds.
Lachapelle, Edouard, St. Paul l'Ermite, Que.	Cotswolds.
Lachapelle, Nap., St. Paul l'Ermite, Que.	
Laferriere, Elie, St. Felix de Valois, Que.	Cotswolds.
Lafontaine, E., Plessisville, Que.	Leicesters.
Laing, Adolph, St. Leon, Que.	
Lambert, Z., Louisville, Que.	
Lang, J., Cairnside, Que.	Leicesters.
Lapointe, Alex., Spring Valley	Leicesters.
Lavellee, Louis, St. Guillaume, Que.	
Lavallee, Paul, Berthierville, Que.	Shropshires.
Lavallee, Pierre, St. Norbert, Que.	
Lavigne, J. P., St. Gertrude, Que.	
Law, Wm., & Son, Ringwood	Shropshires.
Leachy, John, Laquenie, Que.	
Lebel, G., St. Felix de Kinsey, Que.	Leicesters.
Leclerc, Jos., St. Chas. de Bellechase, Que.	
Lee, F. T., Simcoe	
Lee, Herbert, Highgate	
Lee, J. W., & Sons, Simcoe	Oxfords.
Legris, Ulderic, St. Leon, Que.	
Lethbridge, J. G., Alliance	
Letourneau, H., St. Pierre (Montmagny), Que.	
Levert, Nap., Cote St. Vincent, Que.	Leicesters.

Lloyd-Jones, J., Burford	
Loiselle, Joseph, St. Marc, Que.	Cotswolds.
Loiselle, O., St. Marc, Que.	
Lucas, T. A., Bristol Ridge, Que.	Shropshires.
Lupien, L. E., Louiseville, Que.	Lincolns.
Lusignan, J. P., Somerset, Man.	Cotswolds.
Lyons, S. J., Norval	
Lyster, A. J. A., Kirkdale, Que.	
Lyster, C. M., Kirkdale, Que.	
Marshall, R., Elora	
Martin, E. E., Canning	
Mason, J. T., New Sharon, Maine, U.S.A.	Suffolks.
Mathieson, Thos., Queen's Line	
Mayhew, Orian, Canterbury, Que.	Leicesters.
Maynard, J. T., Chilliwack, B.C.	Dorset Horns.
Melvin, S., Greenfields, Ill., U.S.A.	Suffolks.
Metaire, St. Joseph, St. Hyacinthe, Que.	
Middleton, C. B., Clinton	Leicesters.
Milette, P. A., St. Guillaume d'Upton, Que.	Shropshires.
Miller, J. E., Greenbush	Oxfords.
Miller, John, Jr., Ashburn	Shropshires.
Miller, Robert, Stouffville	Shropshires.
Milne, R., & Sons, Green River	Shropshires.
Milot, Hercule, Yamachiche, Que.	Oxfords.
Milot, Honore, Yamachiche, Que.	Oxfords.
Mitchell, John, Glencoe	Lincolns.
Mode, G. D., Vankleek Hill	Shropshires.
Morden, H. W., Barrie Island	Oxfords.
Morgan, E. H., Stanbridge Station, Que.	
Morgan, L. E., Milliken	
Monkman, W. D., Bond Head	
Moore, W. H., Scotch Lake, N.B.	Shropshires.
Morin, Horace, St. Hyacinthe, Que.	
Morin, Trefle, Notre Dame Stanbridge, Que.	
Morrin, D. T., Lachute, Que.	Leicesters.
Mundle, Lyle, C., Kemptville	
Murdock, F., Greenway, Man.	
Macdonald College, Macdonald College, Que.	
MacKay, A. J., Macdonald, Man.	Leicesters.
MacKenzie, N. D., Galt	Shropshires.
McCrae, Lt.-Col. D., Guelph	
McDonald, Roderick, Box 46, Manitowaning	Cotswolds.
McEwen, Lt.-Col. R., Byron	
McGregor, J. D., Brandon, Man.	Suffolks.
McKenzie, J., Keward	Shropshires.
McKillican, N. E., St. Elmo	Oxfords & Leicesters.
McLaren, P. S., McGarry	Oxfords.
McLean, A. B., Foam Lake, Sask.	
McLean, H., Wyoming	
McLean, J. G., Beachburg	Oxfords.
McMillan, Ewan A., Box 40, Laggan	Oxfords.
McPhee, D. A., Vankleek Hill	Oxfords.
McRobie, F., Haddo	
McSweyn, Duncan D., McCrimmon	
Nash, Thos., Gladys, Alta	Shropshires.
Nichols, Wm., Staynerville, Que.	Shropshires.
Noiseaux, Alphonse, St. Michel de Rougemont, Que.	
Noiseaux, F., St. Cesaire, Que.	
Ouimet, Clovis, St. Francois de Sales, Que.	
Ouimet, Clovis, Terrebonne, Que.	Cotswolds.
Pare, Augustin, St. Anne de Beaupre, Que.	Leicesters.
Park, E. F., Burford	
Park, N., Newark	
Parker, J. H. M., Lennoxville, Que.	
Parkinson, L., Guelph	
Parnell, I. J., Springroad, Que.	Leicesters.
Parnell, W. J., Lennoxville, Que.	Leicesters.
Parrott, Wm., Uxbridge	Shropshires.
Patenaude, A., St. Remi, Napierville, Que.	
Patrick, J. H., Ilderton	Lincolns.
Partridge, A. W., Barrie	Leicesters.
Patterson, J. C., Rectory Hill, Que.	Leicesters.
Pelletier, G. A., St. Roch des Aulniers, Que.	Leicesters.
Pelletier, L. C., Montreal, Que.	Oxfords.
Pepin, Ludger, St. Norbert d'Arthabaska, Que.	Leicesters.
Perrault, Toussaint, St. Esprit, Que.	Oxfords.
Perrier, A., La Bataille, Que.	Shropshires.
Philp, R. W., Nestleton Station	Leicesters.
Pibus, John H., Knowlton, Que.	Leicesters.
Picard, Telesphore, St. Theodore Bagot, Que.	
Pierce, Wm., Brinsley	Shropshires.
Pope, E. B., & Son, Hatley, Que.	Shropshires.
Pope, E. B., Campton, Que.	Leicesters.
Potter, A. B., Langbank, Sask.	Leicesters.

DOMINION SHEEP BREEDERS' ASSOCIATION, 1911-1912.—*Concluded.*

NAME AND ADDRESS.	BREED.
Pouloit, Edmond, Arthabaska, Que.	Leicesters.
Provencher, Edouard, St. Norbert, Que.	Shropshires.
Pugh, F. C., Claremont	Shropshires.
Pugh, W. H., Claremont	Leicesters.
Purcell, John, Huntingdon, Que.	Leicesters.
Quain, John, Reedsdale, Que.	Leicesters.
Quebec Live Stock Association, Quebec, Que.	
Quest, John, Hallerton, Que.	Cotswolds.
Quest, Wm., Hallerton, Que.	Cotswolds.
Rawlings, J., Forest	
Rivet, Ovila, St. Esprit, Que.	Leicesters.
Robbins, Levi, Hampton, Que.	Shropshires.
Roberge, J. P., St. Pierre, Que.	Leicesters.
Robertson, Jas., & Son, Milton	
Robinson, J. V., Kanona, N.Y.	Suffolks.
Robinson, Lyndhurst, C., Odelltown, Que.	Cotswolds.
Robson, T. A., Frontier, Que.	
Rosevear, E. A., Roseneath	Dorset Horns.
Ross, John, Kinnear's Mills, Que.	Leicesters.
Ross, J. C., Jarvis	
Rushton, I. J., Rocanville, Sask.	Leicesters.
Ryall, E. N., Unity, Sask.	Shropshires.
Salvis, A., St. Bonaventure de Upton, Que.	
Saunders, O. C., Trilby, P.E.I.	South Downs.
Seminaire Chicoutmi, Chicoutmi, Que.	
Seminiare de Quebec, Quebec, Que.	Leicesters.
Senicol, L. C., St. Marc (Vercheres), Que.	Leicesters.
Setter, Wm., Russell, Man.	Leicesters.
School of Agriculture, La Trappe, Que.	Cotswolds.
Sigfussion, J., Clarkleigh, Man.	
Silver, H. G., Danville, Que.	Hampshires.
Sisson, Milton B., Almond, N.Y.	Suffolks.
Skinner, F. T., Indian Head, Sask.	Shropshires.
Slater, John N., Georgetown, Que.	
Smith, A. W., Maple Lodge	Leicesters.
Smith, Wm., Columbus	Cotswolds.
Snaden, Annie E., Danville, Que.	Leicesters.
Snell, Jas., Clinton	
Snell, J. V., Snelgrove	Cotswolds.
Sporle, W., Jr., Edmonton, Alta.	Shropshires.
Stevens, J. M., Bedford, Que.	Leicesters.
Stevenson, A., Atwood.	
Stewart, Alex., Living Spring	Oxfords.
St. Marie, M., Moe's River, Que.	Shropshires.
Strachan, John, Pope, Man.	
Streatfield, Geoffrey, Emsdale.	Oxfords.
Struthers, Graham, Nayan, Que.	Leicesters.
Sutherland, W. C., Saskatoon, Sask.	Shropshires.
Sutton, Mark, Ospringe	Leicesters.
Sylvester, L. P., St. Theodore d'Acton, Que.	Oxfords.
Sylvester, Paul, Clairvoux, Que.	Cotswolds & Shropshires.
Sylvester, Pierre, Clairvoux, Que.	
Sylvester, V., Clairvoux, Bagot, Que.	Hampshires.
Tarte, Gregorie, St. Sabine d'Iberville, Que.	Leicesters.
Taylor, Alex., Edmonton, Alta.	
Telfer Bros., Paris	
Tessier, Herman, St. Marjorie, Que.	Shropshires.
Thompson, A., Allan's Corners, Que.	Leicesters.
Thompson, Jos., Sardis, B.C.	Suffolks.
Thomson, A., Shakespeare	
Thouin, Louis, Repentigny, Que.	
Titus, A. A., Napinka, Man.	Shropshires.
Todd, T. R., Hillview, Man.	Oxfords.
Trottier, Jos., St. Norbert, Que.	Leicesters.
Trudel, Theo., St. Prosper, Que.	
Turenne, Delphis, St. Paul l'Ermite, Que.	Leicesters.
Turnbull, Oliver, Walton	Leicesters.
Turner, John A., Calgary, Alta.	Shropshires.
Tuttle, Geo. E., Metcalfe	
Underhill, Jas., Claremont	
Vandae, Louis, Clairvoux de Bagot, Que.	Cotswolds.
Vilandre, L., St. Victorie (Richelieu), Que.	Leicesters.
Waddell, Chester, Corey Hill, Que.	Leicesters.
Walker, A., Lachute, Que.	Leicesters.
Wallace, W. A., Kars	Shropshires.
Waters, H., Guelph	
Watson, J. J., Geneva, Que.	Shropshires.

Webb, Horatio, Sardis, B.C.	Shropshires.
Weir Bros., Milton	
Whitelaw, A. & W., Guelph	
Whittaker, H. J., Williamsburg	Oxfords.
Widdifield, J. W., Uxbridge	Oxfords.
Williams, H. E., Knowlton, Que.	Shropshires.
Wilson, J. & A., Hornby	Hampshires.
Wilson, P. H., Sardis, B.C.	Shropshires.
Witham, G. W., Villa Nova	
Wood, C. & E., Freeman	Leicesters.
Wood, Wm., Sr., Palermo	Leicesters.
Wright, John, Chesley, Box 60	Leicesters.
Wright, W. E., & Sons, Glanworth	
Zachary, Thos., Austin, Man.	Leicesters.

MEMBERS OF THE DOMINION SWINE BREEDERS' ASSOCIATION, 1911-1912.

Abra, Moses, Blair	Yorkshires.
Adair, F. H, Stettler, Alta	Berkshires.
Agricultural College, Truro, N.S.	Yorkshires.
Alexander, Geo., Mascouche Rapids, Que.	Chester Whites.
Allison, David, Roland, Man.	Berkshires.
Allison, W., Deloraine, Man.	Berkshires.
Alton, Jas., Belfast	Yorkshires & Berk.
Amphlett, Capt. C. E., Alix, Alta	Berkshires.
Anderson, John, Bromley Line	Berkshires.
Anderson, J. F. & R. C., Boston	Chester Whites.
Anderson, Wm., Tillsonburg	Chester Whites.
Arcand, Chas., Lemoyne, Que.	Poland Chinas.
Ash, Wm. R., North Ridge	Poland Chinas.
Atrill, Samuel, Heatherwood, Alta	Yorkshires.
Bailey, J, Sardis, B.C.	Poland Chinas.
Balcomb, Wm., Langton	Chester Whites.
Baldons, R., Lorlie, Sask.	Yorkshires.
Baldwin, C., Emerson, Man.	Yorkshires.
Banford, W. M., Chilliwack, B.C.	Tamworths.
Barber, J., & Son, Viking, Alta	Berkshires.
Barker & Evans, Agassiz, B.C.	Yorkshires.
Bassiers, Pierre Fils, St. Henri Village	Chester Whites.
Bates, Geo. H., Gilbert Plains, Man.	Duroc Jerseys.
Bates, Norman W., Gilbert Plains, Man.	Duroc Jerseys.
Beaudoin, Leandre, St. Alexandre d'Iberville	Chester Whites.
Beckley, Wm., Red Deer, Alta	
Beckstead, G. A., Morrisburg	Berkshires.
Bedlow, John, Brockville	Berkshires.
Beigne, Hon. F. L., Montreal, Que.	Yorkshires.
Bell, J. J., Islay, Alta	
Bellemare, Gustave, Louiseville, Que.	Berkshires.
Benjamin, Henri, St. Angele, Que.	Yorkshires.
Bennett, F. G., Canterbury, Que.	Yorkshires.
Bennett, Geo., Charing Cross	Chester Whites.
Benson, S., Neepawa, Man.	Yorkshires.
Berg, J. H., Wetaskiwin, Alta.	Berkshires.
Best, H. C., Strathmore, Alta.	
Bills, Thos. E., Crossfield, Alta.	
Birch, R. G., Anderson	Yorkshires.
Bishop, J., Strathcona, Alta.	Berkshires.
Bisson, Edmond, St. Jovite, Que.	
Blackburn, Will, Riviere Mailloux, Que.	Chester Whites.
Blanchard, Etienne, St. Marc, Que.	Yorkshires.
Bogart, F. L., Gosport	
Bonneycastle, C. E., Campbellford	Yorkshires.
Booth, E. W., City View	Berkshires.
Bourassa, M., St. Barnabe, Que.	Berkshires.
Bousefield, J., McGregor, Man.	
Boutet, Jos., Victoriaville, Que.	Yorkshires.
Boutet, Geo., Normandin, Que.	Yorkshires.
Bowman, T. E., High River, Alta.	Berkshires.
Boyle, J. W., Woodstock	
Boynton, Wm., Dollar	Berkshires.
Brain, A. M., Hornby	Yorkshires.
Brandon, J. L., Walsingham Centre	Yorkshires.
Bray, Jos., Portage La Prairie	Berkshires.
Braysley, W. H., Kelloe, Man.	Berkshires.
Brechton, Geoffrey, Mrytle	
Brethour, J. E. & Nephews, Burford	Yorkshires.
Brien, E & Sons, Ridgetown	Berkshires.
Brien, Jules, St. Esprit, Que.	Yorkshires.
Brochn, E., East Broughton Sta., Que.	Yorkshires.
Brodeur, J. P., St. Cesaire, Que.	Chester Whites.
Brodie, Peter, Little York, P.E.I.	Berkshires.
Brooks, Jas. D., Plum Coulee, Man.	Poland Chinas.
Brown, F. W., Portage La Prairie, Man.	Berkshires.
Browne Bros., Ellisboro, Sask.	Berkshires.
Brownridge, W. W., Ashgrove	Berkshires.

DOMINION SWINE BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
Buck, H. A., Sydenham	
Bull, B. H. & Son, Brampton	
Bulstrade, C. G., South Qu'Appelle, Sask.	Berkshires.
Burnside, J., Richard's Landing	
Burr, Jas. F., Annan	Berkshires.
Burrows, Geo., Valley	Yorkshires.
Cabana, Anseline, St. Cuthbert, Que.	Yorkshires.
Caldwell, L. H., Manotick	Chester Whites.
Callbeck, J. W., Summerside, P.E.I.	Yorkshires.
Campbell, Hiram, Finch	Tamworths.
Campbell, Mac., & Sons, Northwood	Duroc Jerseys.
Cantin, Nicolas, Lachenaie, Que.	
Capes, Henry, Kertch	Chester Whites.
Carrier, Eugene, Notre Dame, Que.	Yorkshires.
Carroll, J. M., St. Pierre, Baptiste, Que.	Yorkshires.
Carron, Nelson, Fraserville, Que.	Chester Whites.
Cation, W. J., Snelgrove	
Cauchon, Chas., Chateau, Que.	Yorkshires.
Caulfield, F. St. G., Kingston Sta., N.S.	Berkshires
Central Experimental Farm, Ottawa	
Cerswell, J. A., Bond Head	Yorkshires.
Chapman, F. M., Dundas	Yorkshires.
Choquette, T. Euclide, La Patrie, Que.	Yorkshires.
Circle, Agricole, Rapide de l'Orignal, Que.	Chester Whites.
Clarke, J. H., Waverley Ranch, Glenbow, Alta.	Berkshires.
Clark, J. L., Norval Station	
Clark, H. G., Georgetown	
Clark, J. K., Reid's Mills	Tamworths.
Clifton, Jos. G., Foldens	
Clow, W. H., Prescott Rd., Brockville	
Cogswell, W. S., Centreville, N.B.	Chester Whites.
Cole, T. J., Bowmanville	
Coleman, H. B., Killarney, Man.	Yorkshires & Birk.
College L'Assomption, L'Assomption, Que.	Yorkshires.
Colley, F. T., Stettler, Alta.	Berkshires.
Collin, J. M., Montmagny, Que.	Yorkshires.
Colvin, Jas. A., Sedgewick, Alta.	
Colwell, A. A., Newcastle	Tamworths.
Cooke, W. H. Pope, York, P.E.I.	

Name and Address.	Breed.
Corbin, Oscar, St. Esprit, Que.	Yorkshires.
Corning, J. C., Cheggogin, Yarmouth, N.S.	Yorkshires.
Cote, Hildire, St. Philomene, Que.	Chester Whites.
Cote, Hylas, St. Hugues, Que.	Yorkshires.
Coulthard, E., Lemberg, Sask.	Berkshires.
Couture, Alfred, Belair, Que.	Yorkshires.
Couture, Dr. J. A., 49 Garden Street, Que.	
Couture, Jos., Lorette, Que.	Yorkshires.
Cowan, John S., Donegal	Berkshires.
Cowet, Leonard, Donaldson, P.E.I.	Chester Whites.
Cowieson, J. B., Queensville	Berkshires.
Cox, T. A., Brantford	Berkshires.
Craig, J. J., Riverfield, Que.	Berkshires.
Creighton, J. C., Hawley	Tamworths.
Crerar, Peter, Vernon	
Crockett, Geo., York, P.E.I.	Yorkshires.
Croft, W., Maidstone	Poland Chinas.
Crowell, W. N., Napinka, Man.	Berkshires.
Cudmore, W. T., Ridgetown	
Cunningham, J., Norval	
Currie, Chas., Morriston	Tamworths.
Curtis, A. E., Stanstead, Que.	Chester Whites.
Curry, Hugh & Son, Ingleton, Alta.	
Darling, A. N., Kinsale	Yorkshires.
Dauphin, Alph., St. Norbert Sta., Que.	
Davidson, W. T. & Son, Meadowvale	Yorkshires.
Davis, H. J., Woodstock	Yorkshires & Berk.
Davis, J. H., Strathcona, Alta.	Yorkshires.
Daw, Frank, Gleichen, Alta.	
Dawson, Donald, Kirkton	Berkshires.
DeCourcy, D., Bornholm	
Dedels, H., Breslau	
Degagne, Odilon, Isle aux Coudres, Que.	Yorkshires.
Demill, W. J., Arcola, Sask.	Berkshires.
Denis, Arsene, St. Norbert Station, Que.	
Denison, W. S., Denison's Mills, Que.	Chester Whites.
Dennis, Edgar, Newmarket	Berkshires.
Deschamps, Ulric, Repentigny, Que.	
Descoteaux, J. F., Ste. Monique, Que.	Yorkshires & Berk.
Desrosiers, Jos., St. Felix de Valois, Que.	Yorkshires.

Dickner, F., Notre Dame du Portage, Que.	Yorkshires.
Dickner, Hugh A., Central Onslow, N.S.	
Diehl, Wm., Moon Hills, Sask.	Berkshires.
Disney, W. F., Oshawa	Yorkshires.
Dolson, H. A., Alloa	
Dolson, S., Norval Station	
Dolson, W. J., Norval Station	
Donaldson, Jas., Dewittville, Que.	Yorkshires.
Douglas, D. & Sons, Mitchell	Tamworths.
Dove, J. Alph., Lac Aux Sables, Que.	
Dubs, Geo. A., Rodney	Berkshires.
Duck, John, Port Credit	Yorkshires.
Duck, R. F. & Sons, Port Credit	Yorkshires.
Durham, W. H., Toronto	Yorkshires.
Duthie, James, Hartney, Man.	Berkshires.
Drury, Jos. S., Stoughton, Sask.	Yorkshires.
Dynes, A., 434 Parkdale Ave., Ottawa	Yorkshires.
Ego, R. J., Jarratt	Yorkshires.
Einarsson, J., Bertdale, Sask.	Yorkshires.
Ellenton, J. G., Hornby	
English, A. G., Harding, Man.	Yorkshires.
English, W. H., Harding, Man.	Yorkshires.
Enke, Mas., Galiano Isd., B.C.	Berkshires.
Erb, W. A., Sussex, N.B.	Chester Whites.
Esdon, Jas. H., Bainsville	Berkshires.
Fairbairn, R. D., Carnduff, Sask.	Yorkshires.
Farough, N., Maidstone	Duroc Jerseys.
Fawcett, W. H., Ox Bow, Sask.	
Featherston, Jos. & Son, Streetsville	Yorkshires.
Fenton, W. J., Enderby, B.C.	Berkshires.
Ferguson, J. B., St. Catharines	Chester Whites.
Fetterley, M. & Sons, Russell	
Field, W. H. & J. O., Vanessa	
File, A. J., M.D., Ameliasburg	Yorkshires.
Finlayson, Geo., Ormstown, Que.	Yorkshires.
Finlayson, Kenneth, North Battleford, Sask.	Yorkshires.
Fisher, Hon. Sidney, Knowlton, Que.	Tamworths.
Flanders, Claude, Mohawk	Chester Whites.
Flatt, D. C., & Sons, Millgrove	Yorkshires.
Flatt, John, Millgrove	
Fletcher, Pulp & Paper Co., Sherbrooke, Que.	
Fleury, Alfred, St. Ange Gardien, Que.	
Foley, J. A., St. Thuribe, Que.	Yorkshires.
Forget, R., Baie St. Paul, Que.	Yorkshires.

Fortier, Paul, St. Pierre Baptists, Que.	
Forth, D. J., Glen Buell	Yorkshires.
Fortin, Francis, Adamsville, Que.	Chester Whites.
Foster, A. H., Twin Elm	Yorkshires.
Fox, Nelson, Gordon	Hampshires.
Fraser, J. A., Portage La Prairie, Man.	Berkshires.
Fremlin, D., Bar River	Yorkshires.
Frisby, R. S., Victoria Square	
Fry, Howard, Duncan's, B.C.	
Gagne, Alf., Trottier, Que.	**Yorkshires.**
Garbutt, R. J., Belleville, Que.	
Garceau, Gideon, Point-du-lac, Que.	
Gareau, J. J., St. Roch de L'Achigan, Que.	
Gaucher, Alix, St. Damase, Que.	Chester Whites.
Gauthier, Honore, Papineauville, Que.	Yorkshires.
Gauthier, Victor, St. Telesphore, Que.	Chester Whites.
George, E. D., Putnam	Chester Whites.
George, W. A., Crampton	Tamworths.
German, Herbert, St. George	Tamworths.
Gibson, D. J., Newcastle	Tamworths.
Gibson, H. N., Deleware	Yorkshires.
Giffen, A. & J. H., Lethbridge, Alta.	Berkshires.
Gilliland, W. J., Jericho	Berkshires.
Gilmour, J. W. Roremere, Que.	Chester Whites.
Giroux, Rev. E., Laval, Montmorency, Que.	
Glen, Bros., Didsoury, Alta.	Yorkshires.
Godbout, Jos., Lambton (Beauce), Que.	Berkshires.
Goineau, Alphonse, St. Brigide d'Iberville, Que.	Yorkshires.
Goodhue, A. L., Frelighsburg, Que.	
Goodliffe, S. J., Sussex, N.B.	Yorkshires.
Goselin, R. J. & Son, Essex	
Gould, G. G. Edgar's Mills	Poland Chinas.
Gourlay, Jas., Carp	
Graham, Andrew, Pomeroy, Man.	Yorkshires.
Graham, G. N., Udora	Yorkshires.
Greer Max, Spring Valley	Tamworths.
Grose, J. L., Creebank	Berkshires.
Grove, J. L., Ringwood	Yorkshires.
Hadwen, G. H., Duncan's Station, B.C.	
Haggan, Wallace, Grovesend	Duroc Jerseys.
Hallman, A. C., Breslau	
Hamilton, F. R., Cromarty	Yorkshires.
Harber, W. W., Camrose, Alta.	Yorkshires.

DOMINION SWINE BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
Harding, R. H., Thorndale	
Hardy, Wellington, Roland, Man.	Yorkshires.
Harris, C. E., Heward, Sask.	Yorkshires.
Hartell, F. J., Cheadle, Alta.	
Harvey, John, Frelighsburg, Que.	Hampshires.
Harvey, Peter, McKellar	Berkshires.
Hastings, Bros., Crosshill	
Hauser, I., Ariss	
Havens, T. N. & Son, Aldboro	Yorkshires.
Haw, John, Virden, Man.	Berkshires.
Heard, Jno. A., Flesherton	
Heath, C. N., Sterling	Tamworths.
Heith, John, Sunnidale	Yorkshires.
Henders, R. C., Culross, Man.	Berkshires.
Henry, T. J., Mono Mills	Yorkshires.
Henry, Wm., Rossendale, Man.	Berkshires.
Henry, R., Rossendale, Man.	Berkshires.
Heslop, Arthur, Appleby	Yorkshires.
Hinse, Hippolyte, St. Pierre Baptiste, Que.	Yorkshires.
Homer-Dixon, Mrs., Niagara Falls South	Yorkshires.
Honey, R., Brickley	Yorkshires.
Hood, G. B., Guelph	
Hooker, Geo., Ormstown, Que.	Duroc Jerseys.
Hope, G. A., Wadena, Sask.	Berkshires.
Horn, P., Regina, Sask.	Yorkshires.
Hoskin, B., The Gully	Tamworths.
Howell, H., Headingly, Man.	Tamworths.
Hubbard, F. A., Burton, N.B.	Yorkshires.
Hubbell, L. D., Thamesville	Chester Whites.
Hume, A. & Co., Menie	Yorkshires.
Hunt, C. W., M.D., Indian Head, Sask.	
Hutchinson, Lew, Duhamel, Sask.	Berkshires.
Hyslop, Robt., Brantford	Berkshires.
Ines, J. E., Stanstead, Que.	Yorkshires.
Ings, S. R., Hazelbrook, P.E.I.	Berkshires.
Irving, J. D., Buctouche, N.B.	Yorkshires.
Jackson, Frank, Meadowvale	
James, C. M., Rosser, Man.	Berkshires.
James, Walter & Sons, Rosser, Man.	Yorkshires.
Jewett, J. R., Macinquac, N.B.	Chester Whites.
Jickling, J. B., Carman, Man.	Berkshires.
Johnson, Bros., Underwood	Yorkshires.
Johnson, J. M., Erskine, Alta.	Berkshires.
Jones, Frank, Canyon, Lacombe, Alta.	Berkshires.
Jones, Wm., Zenda	
Keene, Geo., Queensboro	Yorkshires.
Keith, W. & Son, Listowel	Tamworths.
Kelly, John, Shakespeare	
Kelly, J. W., Hagersville	Yorkshires.
Kennedy, Jas., Warden, Que.	Chester Whites.
Kerr, W. J. Woodroffe	Yorkshires.
Ketcheson, Mrs. T. H., Chisholm	Tamworths.
Kettle, C. C., Wilsonville	Yorkshires.
Kingsbury, D. C., Manor, Sask.	
Knowles, T. W., Emerson, Man.	Yorkshires.
Koelln, H., & Son, Glen Allen	Berkshires.
Lachapelle, L., St. Pie d'Bagot, Que.	Chester Whites.
Laing, Thos., Eburne, B.C.	Yorkshires.
Lalamme, Pierre, Mount Johnston, Que.	Chester Whites.
Lalancette. Octave, St. Gerard, Que.	Chester Whites.
Lalime, Louis, St. Hyacinthe, Que.	Tamworths.
Lamb, L. P., Mayfield Station, Man.	Yorkshires.
Lane, Harvey, Glen Banner, Alta.	Berkshires.
Lang, C. J., Hampton	Berkshires.
Lang, R. L., Oak Lake, Man.	Berkshires.
Langelier, Gus. A., Cap Rouge, Que.	
Larkin, J. D., Queenston	Berkshires.
Latioviell, W. H., South Gower	Tamworths.
Lavallee, Louis, St. Guillaume, Que.	
Lavallee, Paul, Berthierville, Que.	
Lavallee, Pierre, St. Norbert, Que.	Yorkshires.
Lawrence, J., Oxford Centre	Berkshires.
Lea, Richard, Bridge Creek, Man.	
Locuyer, Rev. J. A., Verner	Yorkshires.
Lee, Henry, Fairview, Okanagan Valley, B.C.	Berkshires.
Lee, J. W. & Sons, Simcoe	Yorkshires.
Lees, Hugh, Cana, Sask.	Berkshires.
Lefebore, F., St. Etienne de Bolton, Que.	Chester Whites.
Legg, A., Minto, N.D., U.S.A.	Berkshires.
Legge, Herbert, Conway, N.D., U.S.A.	Berkshires.
Leggat, John & Son, Dunham	
Lelerc, Jos., St. Chas. de Bellechase, Que.	

Lemaire, Jas., St. Marjorie, Que.	**Yorkshires.**
Lemon, S., Kettleby	
Leselenc, Yves de, Lochabar Bay, Que.	Yorkshires.
Lessard, Ovila, St. Jean de Matha, Que.	Yorkshires.
Letourneau, H., St. Pierre de Montmagny, Que.	Yorkshires.
Levaegue, O., St. Clet, Que.	Yorkshires.
Little, Thos., Jr., Kirkwall	
Loiselle, O., St. Marc, Que.	
Long, John F., Gadsby, Alta.	Yorkshires.
Long, Robert, Fredericton, N.B.	Berkshires.
Lorraine, Alfred, St. Jerome Junction, Que.	Yorkshires.
Louden, Martin, Binbrook	
Love, H. W., Irma, Alta.	Yorkshires.
Loynachan, A. D., Glen Brook	Yorkshires.
Lyall, Chas. F., Strome, Alta.	Berkshires.
Lyons, S. J., Norval Station	
Lyons, Thos., Cheltenham	Hampshires.
Maher, Albert, Chesley	
Mahew, Alph, Milton East, Que.	Chester Whites.
Malott, Gowan, Leamington	Poland Chinas.
Manitoba Agricultural College, Winnipeg	Yorkshires & Tamworths
Manning, W., Woodville	Yorkshires.
Manseau, F., Nicolet, Que.	Yorkshires.
Manser, Jos., Clive, Alta.	Duroc Jerseys.
Mansfield, Geo., Manotick	
Mark, G. H., Little Britain	Berkshires.
Markle, D. G., Lamont, Alta.	Yorkshires.
Marple, A. J., Brookside, N.S.,	Yorkshires.
Martin, E. E., Canning	
Martin, J. L., Riviere Quelle, Que.	Yorkshires.
Martin, W. A., Gilead	Yorkshires.
Martin, W. H. & Son, Warden, Que.	Berkshires.
Marshall Bros., Crowland	
Marquette, Hugh & Son, Inkerman	
Marvis, J., St. Methode, Adstock, Que.	Chester Whites.
Mauver, John, Clive, Alta.	
Maxwell, E., 6 Beaver Hill Sq., Montreal, Q.	Berkshires.
Maynard, J. T., Chilliwack, B.C.	Essex.
Melton, Henry, Sutorville	Hampshires.
Messenger, R. J., Bridgetown, N.S.	Yorkshires.
Metaire, St. Joseph, St. Hyacinthe, Que.	Chester Whites.
Meunier, A., St. Michael Rougemont, Que.	Chester Whites.
Michon, Victor, St. Thomas d'Aquin, Que.	**Yorkshires.**
Middleton, H. G., 154 Princess St., Winnipeg, Man.	**Yorkshires.**
Millburn, Frank, Virden, Man.	Berkshires.
Miller, H. J., Keene	Yorkshires.
Miller H. & Metcalfe, T., Lloydminster, Sask.	Yorkshires.
Miller, M. W., Brome Centre, Que.	Chester Whites.
Miller, Oscar, Cheadle, Alta	Duroc Jerseys.
Mills, C. E., Cannifton	Tamworths.
Mills, N., South Middleton	Chester Whites.
Mills, Wm., Magnetawan	Poland Chinas.
Miltimore, E., Knowlton, Que.	Tamworths.
Mizener, F. H., Foster, Que.	Chester Whites.
Mode, G. D., Vankleek Hill	Yorkshires.
Monoghan, J. P., St. Lin L'Assomption, Que.	
Monteith, W. F., Salmon Arm, B.C.	
Moore, H. B., Innisfail, Alta.	Berkshires.
Moore, W. H., Scotch Lake, N.B.	Chester Whites.
Morin, Bros., Dennison's Mills, Que.	Chester Whites.
Morin, Treffle, Notre Dame de Stanbridge	Chester Whites.
Morrow, R. O. & Son, Hilton	
Morton, W. H. & Sons, Fairlight, Sask.	Yorkshires.
Muma, G. B., Ayr	
Murdock, W., Palmerston	
MacCullough, J. A., Calgary, Alta.	Poland Chinas.
Macdonald College, Macdonald College, Que.	Yorkshires & Berk.
McBeath, A. A., Marshfield, P.E.I.	Yorkshires.
McClure, Geo. A., Elder's Mills	Berkshires.
McColeman, J. D., Grimesthorpe	
McCullough, P. M., East Durham, Que.	
McDonald, A. D., Napinka, Man.	Yorkshires.
McDonald, A.P., Summerstown Station	Berkshires.
McDonald, Roderick, Box 46, Manitowaning.	
McDonald, R. M., Virden, Man.	Berkshires.
McDiarmid, H. S., Fingal	Yorkshires.
McEwen, P. J., Kertch	
McGill, J. A., Neepawa, Man.	Berkshires.
McGrath, P., Oak Bluff, Man.	Poland Chinas.
McGregor & Bowman, Forest, Man.	Berkshires.
McKearn, Geo., Harvey, N.B.	Yorkshires.
McKenzie, J., Willowdale	
McKenzie, John, Baldur, Man.	Berkshires.
McLean, John, & Son, Aldboro	Yorkshires.
McLennan, J. K., Gladstone, Man.	Berkshires.
McLeod, W. C., Loch Lomond, West, N.S.	Chester Whites.

DOMINION SWINE BREEDERS' ASSOCIATION, 1911-1912.—*Continued.*

Name and Address.	Breed.
McMacken, S. L. T., Butternut Ridge, N.B.	Berkshires.
McNaughton, A. J., St. Raphael West	Yorkshires.
McNern, Wm., Wainwright, Alta.	Yorkshires.
McNish, W. H., Lyn	Yorkshires.
Nelles, Alex. & Son, Boston	Tamworths.
Nichol, J. C., Hubrey	Tamworths.
Nicholson, Chester, Mount Forest,	Yorkshires.
Nicoll, J. A., Rossendale, Man.	
Noble, Thos., Daysland, Alta.	Tamworths.
O'Neil, A. & Son, Birr	
Ontario Agricultural College, Guelph	Yorkshires.
Orchard, Frank, Graysville, Man.	Yorkshires.
Orchard, Harold, Lintrathen, Man.	Tamworths.
Ottawa Valley Journal, Ottawa	Yorkshires.
Ouimet, Clovis, St. Francois de Sales, Que.	
Owens, Hon. W., 4026 Dorchester Street, Montreal, Que.	
Page, J. A., Tyrconnell	Berkshires.
Papin, L. P., Vancluse	Yorkshires.
Parent, J. E., Charlesburg, Que.	Yorkshires.
Parent, J. E., St. Jerome, Que.	Tamworths.
Parker, J. H. M., Lennoxville, Que.	
Parnell, J. J., Spring Road, Que.	Yorkshires.
Partridge, C. A., Saltcoats, Sask.	
Patton, David, Paris Station	Tamworths.
Paquet, Theodule, St. Nicholas, Que.	
Peacock, A., Humber	Tamworths.
Pearson, J. S., & Sons, Meadowvale	Berkshires.
Pearson, Thos. R., Port Hammond, B.C.	Yorkshires.
Pelletier, L. C., 30 Rue St. Jacques, Montreal	Chester Whites.
Pellett, Vivian, T. N., Seamons, Sask.	Berkshires.
Perrault, Toussaint, St. Esprit, Que.	
Perry, Jas., Les Saules, Que.	Chester Whites.
Perry, R. E., Tees, Alta.	Berkshires.
Petch, Benj., Glen William	
Pettit, W. G. & Sons, Freeman	Yorkshires.
Phaneuf, Antoine, St. Antoine, Que.	
Pigeon, Willie, St. Cesaire, Que.	Yorkshires.
Pinkey, Wm., Cooksville	Yorkshires.
Polmateer, D. H., Charlton	Yorkshires.
Porter, Alex., Alexander, Man.	Berkshires.
Potter, A. B, Langbank, Sask.	Yorkshires.
Poupart, Edmond, St. Isadore, Que.	Chester Whites.
Powell, C. A., Arva	Hampshires.
Powell Bros., Elizabethville	Tamworths.
Pritchard, R. J., Box 71, Roland, Man.	Berkshires.
Prouse, T. W., Union Road, P.E.I.	Chester Whites.
Provencher, Alf., Pidgeon, Que.	Yorkshires.
Quebec, H. M., Clover Bar, Alta.	Yorkshires.
Quebec Live Stock Association, Quebec Que.	
Quinton, Ephrem, Mount Johnston, Que.	Chester Whites.
Ratte, Joseph, St. Augustine, Que.	Yorkshires.
Raymond, Alder, St. Alex de Iberville, Que.	Chester Whites.
Readman, Thos., Erindale	Tamworths.
Reddick, P. J., Morrisburg	Tamworths.
Reddy, G. W., Hemmingford, Que.	
Reed, Isaac, Ardtrea	Berkshires.
Reid, Jas., Glen William, Que.	Yorkshires.
Reid, R. & Co., Ottawa	Tamworths.
Reo Peres Jesuites, St. Joseph, Que.	Yorkshires.
Richards, J. J., & Sons, Red Deer, Alta.	Berkshires.
Rich, W. P., Salmon Arm, B.C.	Berkshires.
Rigney, Bros., Bon Accord, Alta.	Yorkshires.
Rioux, Jean, St. Arsene, Que.	Yorkshires.
Rivie, J. B., McGrath, Alta.	Berkshires.
Robbins, C. V., River Bend	Tamworths.
Roberge, J. P., St. Pierre, Que,	Yorkshires.
Rock, John & Son, Springford	Chester Whites.
Rogers, C. E., Ingersoll	Chester Whites.
Roper Bros., Charlottetown, P.E.I.	Tamworths.
Rouleau, Alphonse, St. Gregorie, Que.	Yorkshires.
Roy, B. L., Cap Chat, Que.	Yorkshires.
Rutherford, J. H., Caledon East	
Rye, J. & Sons, Edmonton, Alta.	Tamworths & York.
Sanders, C. McG., Fortier, Man.	Yorkshires.
Sanderson, Thos., Holland, Man.	Yorkshires.
School of Agriculture, La Trappe, Que.	
School of Agriculture, St. Anne de la Pocatiere, Que.	Yorkshires.
Scott, F. W., Highgate	Berkshires.

Scott, H. H., Iron Hill, Que.	Tamworths.
Scott, John, Atha	
Seminaire de Quebec, Quebec, Que.	Yorkshires.
Semple, J. L., Brule, N.S.	Berkshires.
Shannon Bros., Cloverdale, B.C.	Berkshires.
Shaw, F. T., Box 241, Edmonton, Alta.	Yorkshires.
Shellington, J. H., Harley	Yorkshires.
Shepherdson, W. J., Walter's Falls	Berkshires.
Sheppard, Frank, Weyburn, Sask.	Berkshires.
Sheppard, Rice, Strathcona, Alta.	Berkshires.
Shields, W. A., Milton	
Sinclair, P. J., Brocksden	
Skinner, F. T., Indian Head, Sask.	Yorkshires.
Smeltzer, Maurice, Strathcona, Alta.	Yorkshires.
Smith Bros., South Woodslee	
Smith, G. M., Edmonton, Alta.	Yorkshires.
Smith, G. W., Fredericton Jct., N.B.	Berkshires.
Smith, J. W., Cottam	Berkshires.
Smith, R. J. A., Fairfield Plains	
Smith, W. M., Fairfield Plains	
Snell, C. F., Norwich	Hampshires.
Snider, I. A., Floradale	Yorkshires.
Snowden, S., Bowmanville	
Speer, James, Brussels	Yorkshires.
Stackhouse, A. L. Kinburn	Yorkshires.
Standish, Clarence, Rougemont Sta., Que.	Chester Whites.
Standish, John E., Rougemont, Que.	Chester Whites.
Standish, Matthew, Rougemont, Que.	Chester Whites.
Stanton, T., Wheaton, Ill., U.S.A.	Berkshires.
Stauffer, D. W., Greenshields, Alta.	Berkshires.
Stevens, J. M., Bedford, Que.	Tamworths.
Stewart, James J., Gladstone, Man.	Yorkshires.
Stewart, Robert, Winsloe Station, P.E.I.	Yorkshires.
Stewart, Wm. A., Chatham	
Stirton Bros., Bensfort	Yorkshires.
St. Laurent College, St. Laurent, Que.	Yorkshires.
St. Marie, M., Moe's River, Que.	Yorkshires.
Stony Croft Stock Farm, Ste. Anne de Bellevue, Que.	
Stowe, J. M. & Sons., Davidson, Sask.	Poland Chinas.
Strachan, John, Pope, Man.	
Strong, W. C., North Sutton, Que.	Berkshires.
Struthers, Allan, Jr., Miniota, Man.	Berkshires.
Stuart, J. C., Dalmeny	Yorkshires.
Stutzinger, Hyland, Fenwick	Hampshires.
Sutherland, W. C., Saskatoon, Sask.	
Swift, S. C., Magin, Alta.	Berkshires.
Sylvestre, Paul, Clairvoux, Que.	Chester Whites.
Sylvestre, Pierre, Clairvoux de Bagot, Que.	
Sylvestre, Victor, Clairvoux, Que.	Poland Chinas.
Symes, Chas., Menudie, N.S.	Poland Chinas.
Tait, W., St. Laurent, Que.	Yorkshires.
Taylor Bros, Dewittville, Que.	Yorkshires.
Taylor, W. R., Woodbridge	
Teasdale, Frank, Concord	
Teasdale, Thos., Weston	
Tees, W. E., Tees, Alta.	Yorkshires.
Thompson, J., Sardis, B.C.	Yorkshires.
Thomson, Adam, Shakespeare	Berkshires.
Thouin, Louis, Repentigny, Que.	
Thurston, R. E., Bobcaygeon	Yorkshires.
Tibbitts, John W., Knowlton, Que.	Yorkshires.
Todd, J. W., Corinth	
Todd, W. S., Ormstown, Que.	Berkshires.
Tolmie, S. F., Box 1518, Victoria, B.C.	Yorkshires.
Tomecho, Steve, Fort Qu'Appelle, Sask.	Berkshires.
Touchette, Wilfred, St. Jean Baptiste, Que.	Yorkshires.
Tourigny, Paul, Victoriaville, Que.	Yorkshires.
Trappistes, R.R.P.P., St. Norbert, Man.	Yorkshires.
Trout, Roy. H., Blackfalds, Alta.	
Trudel, Theophile, St. Prosper, Que.	Yorkshires.
Trueman, J. O., Truemanville, N.S.	Berkshires.
Tuttle, Geo. E., Metcalfe	
Vanderlip, H. M., Cainsville	Berkshires.
Van Horne, Sir Wm., East Selkirk, Man.	Yorkshires.
Vallance, J. T., Kindersley, Sask.	
Vessot, S. & Co., Joliette, Que	Yorkshires.
Waddell, Thos., Edwards	Berkshires.
Wallace, J. H., Renfrew	Berkshires.
Wallace, W. A., Kars	Berkshires.
Warner, D. W., Edmonton, Alta.	Berkshires.
Watson, A. M., Weyburn, Sask.	Berkshires.
Watt, A. A., Brucefield	Yorkshires.
Watt, E. J., Box 148, Balmoral, Man.	Berkshires.
Weaver, C. W., Deloraine, Man.	Berkshires and Duroc Jerseys.

DOMINION SWINE BREEDERS' ASSOCIATION, 1911-1912.—*Concluded.*

Name and Address.	Breed.
Webb, Horatio, Sardis, B.C.	Berkshires.
Weir, J. & Son, Box 38, Paris	Berkshires.
Welker, Jas, M., Sutherland, Sask.	Poland Chinas.
White, S. H. & Co., Ltd., Sussex, N.B.	Berkshires.
White, Wellesley, Thornhill, Man.	
Wienke, F. W., Stony Mountain, Man.	Poland Chinas.
Wigg, W., Lewisville, Alta.	Berkshires.
Wight, Gus., Napinka, Man.	Berkshires.
Wilkinson, D. W., Leduc, Alta.	Yorkshires.
Williams, M. P., Alvaston, B.C.	Berkshires.
Wilson, A. S., Hornby	Berkshires.
Wilson, H., Ashgrove	
Wilson, Jas. & Son, Fergus	Yorkshires.
Wilson, J. C., Sine	
Wilson, J. J., Milton	Berkshires.
Wilson, Matthew, Fergus	Berkshires.
Wilson, W. C. & Son, East Oro	Yorkshires.
Winny, R. H., Nicola, B.C.	Berkshires.
Wintle, G. S., Richmond, Que.	Chester Whites.
Witherspoon, C., Glenboro, Man.	Yorkshires.
Woods, Thos., Blackstock	Yorkshires.
Woodwiss, R., Binscarth, Man.	Berkshires.
Womacks, A. M., Camrose, Alta.	Yorkshires.
Wright, Geo. B., Wheatley	Berkshires.
Wright, M. H., Outlook, Sask.	Berkshires.
Wright, W. E., Glanworth	Chester Whites.
Wright, W. E., Emerson, Man.	Duroc Jerseys.
Wylie Bros., Box 27, Cardinal	Berkshires.
Young, Fred., Stanstead, Que.	
Young, Jas. M., Newdale, Man.	

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.

Name and Address.	Variety.
Adam Bros., 127 Hamilton Rd., London	Partridge Wyandottes.
Alexander, J. W., "Idylwyld," Guelph	Buff Orpingtons.
Alexander, W. J., Ashgrove	Plymouth Rocks.
Allen, R. W., 78 Lee Ave., Toronto	Pigeons.
Amos & Sons, Geo., Moffat	White Wyandottes, S. C. White Leghorns.
Anderson, Irvine, 8 Grove Ave., Hamilton	S. C. Rhode Island Reds.
Andrewes, Fred. A., London	White Plymouth Rocks.
Andrew, Thos., Pickering	Barred Plymouth Rocks.
Archer, Albert E., Paisley	White Wyandottes.
Archer, Wm., Paisley	White Wyandottes.
Ardagh, I. J., 149 Walmer Rd., Toronto	S. C. White Leghorns.
Armstrong, A. A., Fergus	Dressed Poultry.
Armstrong, M. W., Box 392, Wingham	Pit Games.
Armstrong, Wm., Fergus	Dressed Poultry.
Atkin, Isaac D., Main St., Milverton	White Wyandottes, Bantams.
Bailey, Geo., 531 Delaware Ave., Toronto	Pigeons.
Bailey, J. R., 35 Union St., Guelph	Silver-Pencilled Wyandottes.
Baird, Archie, St. Marys	Anconas, A. O. V. Fowls.
Baker, E. S., Guelph	R. C. White Leghorns, Andalusians, Black Cochin Bantams, Turkeys, Geese, Ducks.
Baker, Geo., Simcoe	White Turkeys.
Baptie, James, Springville	Silver Laced Wyandottes, Colored Dorkings, Hamburgs, Cayuga Ducks.
Barber, R. H., 8 Wilson St., Guelph	Pit Games.
Barber, W., 118 Roncesvalles Ave., Toronto	Games, Black Leghorns, Game Bantams.
Barbour, Miss Z., Erin	Barred Plymouth Rocks, Utility Fowl, Dressed Poultry.
Barker, R. K., 24 King St. W., Toronto	Pigeons.
Bawden, John, Box 20, Ridgetown	Buff Plymouth Rocks.
Beattie, W. H., R. R. No. 9, Pond Mills	Turkeys.
Becker, H. F., Waterloo	S. C. Brown Leghorns.
Becker, J. S., 24 Macdonnell St., Guelph	White Polish Bearded Bantams.
Becker, Peter P., Waterloo	Partridge Wyandottes, Anconas.
Becker & Sons, West Lorne	Golden Laced Wyandottes, Black Sumatra Games.
Bell, Robert, Forest	Games.
Bell, W. J., Angus	R. C. White Leghorns, Turkeys.
Beemer, W. H., 314 Barton St. E., Hamilton	Buff Plymouth Rocks.
Berdux, Philip, Wellesley	Bantams, Turkeys, Geese, Ducks, Dressed Poultry.
Bertram, Peter, Grimsby	White Wyandottes, S. C. White Leghorns, Dressed Poultry.
Bible, Frank, Jr., 762 Logan Ave., Toronto	Pigeons.
Billings, R., Woodstock	Buff Leghorns.
Blain, Jas. W., Milton	White Wyandottes, Black Cochin Bantams.
Bleiler, Edward, Preston	Plymouth Rocks, R. C. Brown Leghorns.
Blyth, C., 232 Lisgar St., Toronto	Buff Leghorns.
Bock, A. E., 450 Central Ave., London	White Minorcas.
Bogart, Frank C., Napanee	White Orpingtons.
Bogue, David, Lambeth	Spanish, Dorkings, Golden Bearded Polands.
Bogue, G. & J., Strathroy	White Cochins, Mottled Javas, Spanish, Colored Dorkings, Houdans, Creve Coeurs, La Fleche, Polands, Hamburgs, Ducks.
Boug, E. & O., 572 Adelaide St., London	Cochin Bantams, A. O. V. Bantams.
Bower, Thos., Wingham	Pyle Game Bantams, A. O. V. Game Bantams, S. Duckwing Game Bantams.
Bowling, J. & A., 272 Railway Ave., Stratford	Barred Plymouth Rocks, Rhode Island Reds, Spanish Anconas, Pheasants, Pigeons.
Bowron, Walter, R. R. No. 5, Hamilton	Anconas.
Bradley, John, Milton West	S. C. Rhode Island Reds, S. C. Brown Leghorns.
Bricker, A. C. & I., Durst, Box 72, Listowel	Buff Plymouth Rocks, R. C. Rhode Island Reds, White Orpingtons.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.—*Continued.*

Name and Address.	Variety.
Bridge, Wm., Grange Rd., Guelph	Wyandottes.
Brill, L. Austin, 129 Sackville St., London	Bantams.
Brown, J. L., Seaforth	White Plymouth Rocks, Utility Fowl.
Bullock, W. J., Gananoque	
Bullock, W. V., Gananoque	
Burn, Geo, Tillsonburg	Dominiques, Silver Duckwing Leghorns, Silver Polands, A. O. V. Fowl, Geese, Ducks.
Burns, G. A., Ayr	Silver Grey Dorkings.
Buck, J. Norton, 11 William St., Brantford	Light Brahmas.
Burrow, Geo. & Wm. Wells, Guelph	Wyandottes.
Cadman, Wm., Dereham Centre	Leghorns, Houdans.
Campbell Bros., 524 Colborne St., Brantford	S. C. White Leghorns.
Campbell, J. M., Crosshill	Buff Plymouth Rocks.
Campbell, Wm. J., 19 Berryman St., Toronto	Pigeons.
Carbert, G. B., Campbellville	Dominiques, Pit Games.
Carter, Wm., Constance	Hamburgs.
Case, C. W., Rochester, Mich.	Buff Cochins, Utility Fowl.
Charlton, A., 54 Stafford St., Toronto	Games.
Christie, Robert, Mount Hamilton	White Orpingtons.
Clark, P., 579 Concord Ave., Toronto	Pigeons.
Clark, Stephen L., Galt	R. C. Black Minorcas.
Clark, W. A., Harrow	Barred Plymouth Rocks.
Cohoe, J. E., 191 Division St., Welland	White Orpingtons, A. O. V. Fowls, Utility Fowl.
Colton, Thos., Lambton Mills	White Wyandottes.
Cook, Geo. C., 10 Norfolk St., Toronto	Minorcas.
Corder, Geo. F., Rodney	R. C. Rhode Island Reds, Utility Fowl.
Cotton, Oliver, 125 Oxford St., Guelph	Leghorns, Rhode Island Reds.
Cox, Alfred H., 142 Balsam Ave., Toronto	Buff Wyandottes.
Crane, Alfred C., Guelph	Turkeys, Geese, Ducks.
Crawford, L. E., 181 S. Brock St., Sarnia	Buff Cochins, Black Orpingtons.
Crawford & Sons, J., Mitchell	Indian Games.
Crowe, Chas. R., 284 Woolwich St., Guelph	Game Bantams.
Cumming, Dr. C. R., Galt	Black Cochin Bantams.
Curliss, Harry, 50 Harris St., Galt	Hamburgs.
Cuthbert, C. R., Alton	Rhode Island Reds.
Daly & Sons, Peter, Box 26, Seaforth	Golden Laced Wyandottes.
Daniels, C. J., 196 River St., Toronto	Rhode Island Reds, Black Sumatra Games, A. O. V. Fowls, Utility Fowl.
Dawson, W., London East	White Wyandottes.
Day, C., Highgate	Bared Plymouth Rocks, S. C. Brown Leghorns, S. C. Black Minorcas, Houdans.
Deverell, E. M., Whitby	Buff Cochins, Black Orpingtons, Cochin Bantams.
Dickie, Robert T., 836 Colborne St., London	Light Brahma Bantams.
Dill, P., Dublin	White Orpingtons.
Donovan, H. B., 14 Bank St., Toronto	Game Bantams, White Polish Unbearded Bantams, Bantams.
Douglas, D., & Sons, Mitchell	S. C. White Leghorns, Toulouse Geese, Pekin Ducks.
Dryden, John J., 35 Powell St., Guelph	S. C. Brown Leghorns.
Dulmage, F. C., 766 Waterloo St., London	White Plymouth Rocks, Utility Fowl.
Dunne, Henry, 1492 Queen St. W., Toronto	S. C. Black Minorcas.
Dunning, H., Thornton	S. C. Black Minorcas.
Durand & Shields, Toronto	Buff Wyandottes.
Durst, John C., Benmiller	White Plymouth Rocks, S. C. White Leghorns.
Dyke, Wm. H., 32 McDonnell St., Guelph	Game Bantams.
Edgar, Thos., 149 Peel St., Brantford	R. C. Brown Leghorns.
Ellenton, J. G., Hornby	White Wyandottes.
Elliott, W. J., St. Catharines	Games, Buff Orpingtons.
Engel, A. J., Box 144, Waterloo	S. C. Brown Leghorns.
Essex, Robert H., Buffalo	
Faulds, T. A., 11 Victor St., London	S. C. Rhode Island Reds.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.—*Continued.*

Name and Address.	Variety.
Ferguson, F. K., 52 Frederick St., Berlin	Orpingtons.
Ferguson, Wm., Box, 387, Brantford	S. C. White Leghorns.
Finchamp, C., 685, Colborne St., London	Indian Game Bantams.
Fitzsimmons, Henry, London Jct.	White Wyandottes.
Flawn & Benbow, London	Wyandottes.
Floyd, Francis, 64, Murray St., Toronto	Buff Orpingtons.
Fraleigh, H., Forest	Black Cochin Bantams.
Fraleigh, E., St. Mary's	Black Orpingtons.
Furneaux Bros., 1 Main St., St. Catharines	Hamburgs.
Fyfe, Geo., Gourock	Dressed Poultry.
Gallinger, F. H., Southend	Black Leghorns.
Garland, S. S., Pinkerton	Pekin Ducks.
Gies, W. T., Albert St., Waterloo	Anconas.
Glen Oak Poultry Yards, Toronto	White Plymouth Rocks, Orpingtons, Utility Fowl.
Gordon, Jos., Birch St., Galt	White Wyandottes.
Gould, Chas., Box 242, Glencoe	S. C. Black Minorcas, Turkeys.
Gould, Melvin, 217 Hamilton Rd., London	Pigeons.
Graham, Mrs. E. D., Queensville	Buff Orpingtons, Utility Fowl.
Graham, R. B., 96 McNaughton St., Galt	Buff Leghorns.
Grant, H. A., Owen Sound	Buff Orpingtons.
Greenshields, J. S., Box 31, Danville, Que.	Pigeons.
Greenside, C. H., Mt. Forest	S. C. White Leghorns.
Grigg, A. J., Clinton	Game Bantams.
Grier Bros., 7th Ave. & 4th St., Owen Sound	S. C. White Leghorns, Andalusians, A. O. V. Fowl.
Grimsley, Harry, Bedford Park	Partridge Plymouth Rocks, Indian Runner Ducks.
Gunn, Langlois & Co., Bondville, Que.	S. C. Rhode Island Reds.
Hales, J. P. & E. A., Guelph	Indian Games, S. C. Black Minorcas, A. O. V. Fowl, Guinea Fowl, Dressed Poultry.
Haliburton, Gordon M., Woodstock	White Wyandottes.
Hall, Chas. & Son, Trafalgar	Barred Plymouth Rocks.
Hall, F. T., Drumbo	Partridge Plymouth Rocks.
Hall, Thos., 650 Piccadilly St., London	Anconas.
Hallman, H. S., 31 Bingeman St., Berlin	White Orpingtons.
Halloran, John, Brantford	S. C. White Leghorns.
Hamilton, A. S., 106 Victoria St., Toronto	Black Langshans.
Hamilton & Scoyne, 29 Orchard St., London	Black Orpingtons.
Hambly, Fred., 338 Berkeley St., Toronto	Pigeons.
Handley, John, 22 Lowell St., Galt	Partridge Cochins, Indian Games.
Hargrove, Walter, Lynwood	Dressed Poultry.
Hart & Grimoldby, 444 12th St., Owen Snd.	Pit Games, Brown Red Game Bantams.
Hastings, Wm., 15 Berlin St., Guelph	White Wyandottes.
Hedden & McCutcheon, London	Partridge Wyandottes.
Henderson, G. G., 24 Prospect St., Hamilton	White Wyandottes, S. C. Brown Leghorns, Pyle Game Bantams.
Henry, J. F., 28 Green St., Guelph	Pigeons.
Henry, Robert, 27 Green St., Guelph	Pigeons.
Hewitt, Jack, Collingwood	Light Brahma Bantams.
Higman, Geo., Jr., 176 Rideau St., Ottawa	Partridge Wyandottes.
Hilliard, W. L., Waterloo	White Orpingtons.
Hodge & McLuckie, Toronto	Barred Plymouth Rocks.
Hoffman, H. A., Ridgetown	Buff Orpingtons.
Holmes, Thos. F., 470 Brock Ave., Toronto	Belgian Hares.
Holmhurst Poultry Yards, Whitby	Buff Cochins.
Hood, Wm. J., 17 McTague St., Guelph	Dorkings, Orpingtons, Minorcas, Leghorns.
Hoover, M. R., Locust Hill	Plymouth Rocks, R. C. White Leghorns
Holtermann, D. G., Brantford	Buff Orpingtons.
Howard, Geo., 18 Marjorie Ave., Toronto	A. O. V. Bantams.
Howard, W., Box 372, Guelph	Duckwing Game Bantams.
Howe, Wm., North Bruce	White Wyandottes.
Hughes, Russell J., Bowmanville	Golden-laced Wyandottes, Black Red Game Bantams, G. Sebright Bantams.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.—*Continued.*

NAME AND ADDRESS.	VARIETY.
Hughes & Taylor, Court House, London	Rhode Island Reds, Utility Fowl.
Irwin, A. J., Box 52, Mt. Forest	S. C. Brown Leghorns.
Isbell, J. T., Logan Ave, Todmorden	Bantams.
James, W. J., 993 Talbot St., St. Thomas	Black Red Games.
Jamieson, Geo. A., Granton	Black Orpingtons.
Jarvis, A., 17 Baker Ave., London	Golden Bearded Polands.
Jarvis, F. C., Yonge St., Toronto	Black Red Games.
Jarvis, John W., 143 Wreay St., London	Light Brahmas, Silver Grey Dorkings.
Johnson, Chas., Mimico	Pigeons.
Johnston, J. R., Leamington, Box 467	Wyandottes.
Johnston, R., 497 English St., London	Indian Games, any variety.
Karn, H., 174 Water St. Guelph	Mallard Ducks.
Karn, John H., Delhi St., Guelph	S. C. Black Minorcas, White Chinese Geese.
Kay, Wm. J., Box 378, Guelph	Rhode Island Reds.
Kedwell Bros., Box 19, Petrolea	White Leghorns.
Kemp & Waterman, 39 Elmwood Ave., London.	Partridge Cochins, Black Orpingtons.
Keough, Jas. E., Rockwood	Barred Plymouth Rocks, Pekin Ducks, Pigeons.
Kiley, T. J., 855 Maitland St., London	White Booted Bantams.
Kinder, Geo. W., Strathroy	White Wyandottes, Red Caps.
King, F. D., Box 318, Aylmer West	Silver-laced Wyandottes, Black Sumatra Games, Spanish, S. C. Black Minorcas, White Dorkings, Black Hamburgs.
King, T. A., Hornby	S. C. Rhode Island Reds, S. C. Brown Leghorns.
King, H., 135 Elizabeth St., Guelph.	S. C. Black Minorcas.
King & Johnston, Appin	S. C. White Leghorns, Andalusians.
Kingsbury, Chas. E., Port Credit	Partridge Cochins.
Klager, J. E., Hespeler	S. C. Rhode Island Reds, Utility Fowl.
Knight, Alfred, Box 103, Davisville	Pigeons.
Knight, Isaac T., Arkell	A. O. V. Geese, Ducks.
Knott, Thos. C., 18 Carfrae Cres., London	Anconas.
Krouse, F. W., Box 587, Guelph	Silver-laced Wyandottes, Black Javas, Andalusians, Silver Grey Dorkings, Hamburgs, Utility Fowl.
LaFortune, Arthur, Guelph.	White Wyandottes.
Lang, Jacob, Box 84, Beamsville	A. O. V. Fowl.
LaTour, Jas. J. Brighton	Light Brahmas, Barred Plymouth Rocks, Columbian Wyandottes.
Lawton, C. Cookstown	White Wyandottes, S. Duckwing Game Bantams.
Lemon, W., Lynden	Silver-laced Wyandottes, S. C. White Leghorns.
Lerch, Jacob, Kossuth	Dressed Poultry.
Letson, Elmore, 55 Foundry St., S. Berlin.	White Orpingtons.
Liddicoat, E. J., 778, Hellmuth Ave., London	Houdans.
Linn, Wm., Campbellville	S. C. Black Minorcas, R. C. Rhode Island Reds, Barred Plymouth Rocks.
Limon, E., 10 St. Albans St., Toronto	Pigeons.
Lippert, David, Waterloo	Red Caps.
Luscombe, John, Merton	R. C. Rhode Island Reds.
Lush, Harry T., Peterborough	Dark Brahmas, White Cochins, Wyandottes, Buff Orpingtons, Hamburgs, Brown Red Game Bantams.
Luxton, Whetham & Fricker, Mt. Forest	Dark Brahmas, Black Wyandottes, Dominiques, Black Javas, Pit Games, Silver Bearded Polands, Turkeys, Geese, Ducks, Dressed Poultry.
Magill, J. H., Port Hope	Pigeons.
Mallen, Albert, 50 Derry St., Guelph	White Wyandottes.
Mapes, C. L., 36 S. James St., Hamilton	R. C. Rhode Island Reds.
Marrs, John, Box 416, Teeswater	Barred Plymouth Rocks.
Martin, Irving K., Box 159, Galt	Duckwing Games, R. C. White Leghorns.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.—*Continued.*

NAME AND ADDRESS.	VARIETY.
Massie, Chas., Port Hope	White Wyandottes.
Meldrum, Jas., Hamilton	Light Brahmas, Black Leghorns.
Middlemiss, Robert C., Brantford	Columbian Wyandottes.
Miles, Jos., Norwich	Dressed Poultry.
Millard, I. K., Dundas	Barred Plymouth Rocks.
Mogridge, Jos. S., Box 366, Galt	Golden Pheasants.
Montgomery, E. F., 27 E. Tiffany St., Guelph	S. C. Brown Leghorns, White Cochin Bantams, Belgian Hares.
Moore, Wm., London West	
Morley, Jas., Milton West	Black Red Games.
Morton, G., Carluke	Utility Fowl.
Mounce, J. E., Armstrong Mills	Dressed Poultry.
Mountjoy, B. J., London	R. C. Black Minorcas.
Moyer, Alex., 58 Spruce St., Galt	White Minorcas.
Moyer, A. C., Waterloo	S. C. Black Minorcas.
Murray, W. G., Strathroy	Black Hamburgs, Sultans, Bantams.
MacRae, Dr. J. N., Box 268, Galt	Cochin Bantams.
MacKay, W. E., 1150 Dundas St., Toronto	Pigeons, Cavies, Rabbits.
McAllister, Geo. R., Jr., Guelph	White Wyandottes, Pigeons.
McAree, J. V., Mimico	Pit Games, Pigeons.
McCombs, E. E., Pelham Corners	Andalusians, Silver Grey Dorkings, Houdans, Indian Runner Ducks.
McCormick, Jas. L., Echo Place	S. C. White Leghorns.
McCormick, Jas. M., Box 52, Rockton	Dorkings, Geese, Turkeys.
McCulloch, A. C., Epsom	Anconas.
McCurdy, R., 176 St. George St., London	Black Langshans.
McDiarmid, Jas. S., Box 274, Ingersoll	S. C. Brown Leghorns.
McDonald, W. M., R. R. No. 7, Thedford	R. C. Rhode Island Reds.
McDonell, J., 215, Park Ave., Brantford	Anconas, A. O. V. Fowl.
McDougall & Sons, A., Milton West	Turkeys, Rouen Ducks.
McDougall, E. C., Fairfield East	Buff Orpingtons, Houdans.
McEwan, P. J., Kertch	Wyandottes, Orpingtons, Leghorns.
McGlennont, W. W., Colborne	Silver Grey Dorkings.
McKee, Harry H., Norwich	Silver Grey Dorkings.
McKenzie & Plester, Guelph	Pit Games.
McLellan, T. E., 121 Concession St., Galt	Black Orpingtons.
McLeod, W. J., 26 Evergreen Ave., London	Black Leghorns.
McNeil, Wm., 778 Waterloo St., London	Polands, White Polish Bearded Bantams.
McPherson, Jas., Mt. Forest	White Plymouth Rocks.
Nickell, Wm., 167 Penrose St., Sarnia	S. C. Black Minorcas.
Northey, J. A., 42 Forest Hill Rd., Toronto	Black Cochin Bantams.
Norton, Harry, R. R. No. 4, Tambling's Cnrs.	Indian Games, Any Variety.
Nixon Bros., Tambling's Corners	White Wyandottes, Indian Games.
Oke, Richard, Box 361, London	Mottled Javas, Hamburgs, Bantams.
Orr & Creedon, 54 Albion St., Brantford	S. C. Brown Leghorns.
Ottawa Pigeon Lofts, 91, 2nd Ave., Ottawa	Pigeons.
Page, Maurice, Sans Bruit, Que	A. O. V. Rabbits.
Palmer, T. A., 23 Ontario St., Guelph	Silver-pencilled Wyandottes.
Parker, Leonard, 1042 Dufferin St., Toronto	Rabbits.
Parkinson, John, Crumlin	Pyle Games.
Parkinson, L., R. R. No. 1, Guelph	R. C. Rhode Island Reds.
Parrott, Thos., Collingwood	Black Red Games, Pyle Games, Pyle Game Bantams.
Patterson, Robert, 30 Elizabeth St., Guelph	Wyandottes.
Pautler, W. E. Preston	White Plymouth Rocks, Spanish.
Pearson, J. J., Cooksville	White Chinese Geese.
Pearson, Wm., 249 Suffolk St., Guelph	A. O. C. Langshans, Game Bantams, Bantams.
Peart, Jno. E., 31 Pine St., Hamilton	Black Javas, Black Hamburgs.
Peck, Geo. A., Mt. Dennis	Silver-laced Wyandottes.
Peer, Gideon, 435 Metcalfe St., Guelph	Partridge Plymouth Rocks, Anconas.
Penwarden, E. O., St. Thomas	Anconas, Houdans.
Perkins & Schultz, 1830 Dundas St., Toronto	Indian Runner Ducks, Pigeons.
Petrie, H. J., Lottridge Ave., Hamilton	White Orpingtons.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.—*Continued.*

Name and Address.	Variety.
Phenix, Wm., St. Thomas	Anconas, Houdans.
Pickard, F. J. Box 438, Galt	Cochin Bantams.
Pickering & Carroll, Toronto	Pit Games, Houdans.
Pierce, Harry, 206 Brant Ave., Brantford	Pigeons.
Pine Grove Pigeon Lofts, Ottawa	Pigeons.
Pingel, Dr. & Son, 316 Queen's Ave., London	Pigeons.
Pond, R. H., 130 Victoria St., Woodstock	R. C. Brown Leghorns.
Pooley, Herb. A., 94 Beach Ave., Toronto	Black Wyandottes.
Powell, Earl, 233 Balliol St., Davisville	Pigeons.
Prideaux, Jno. D., Benton Harbor, Mich.	Partridge Cochin Bantams.
Prince Bros., Windsor	Orpingtons.
Pritchett, J. B., London	Silver-pencilled Wyandottes.
Pudifin, C. H., 681 Dufferin St., Toronto	Pigeons.
Rawnsley, Harold, Toronto	Pigeons.
Read, J. C., Owen Sound	White Minorcas.
Readman, G., Erindale	Geese.
Readwin, A. & T., Guelph	Wyandottes, Black Leghorns, Pigeons. Dressed Poultry.
Reid, Wm. H., 35 Union St., Kingston	Pigeons.
Reid, Wm. J., 93 Surrey St., Guelph	S. C. Rhode Island Reds.
Rice, Chas. F., Bowmanville	Black Wyandottes, Spanish.
Richards, C. H., Bowmanville	Barred Plymouth Rocks, S.C. Black Minorcas.
Riener, E. R., 51 Alma St., Berlin	Pigeons.
Roberts, Mrs. S. A., 41 Regina St., London	Red Caps.
Robertson, Geo., Box 242, Ottawa	White Plymouth Rocks.
Robertson, W. O., Eden Mills	Turkeys, Geese, Ducks.
Rolland, Jean, Mont Rolland, Que.	Barred Plymouth Rocks.
Rook Bros., Prescott	Game Bantams.
Rose, Hugh A., Welland	Creve Coeurs, Silver Bearded Polands, Sultans, Game Bantams, Bantams.
Rosser Bros., 60 Close Ave., Toronto	Bantams.
Rundle, Howard, C., Brighton	White Wyandottes.
Rundle, S., 26 Clark St., Guelph	Partridge Wyandottes.
Russell, Jos., 1308 Queen St. E., Toronto	Barred Plymouth Rocks, White Wyandottes, Rhode Island Reds.
Saunders, J., Maitland St., London	Silkies.
Sanders, R. H., Box 22, Ealing	Golden-laced Wyandottes.
Saunders, Sid., Woolwich St., Guelph	White Wyandottes.
Sawden, Chas., 259 Leslie St., Toronto	Rhode Island Reds.
Scanlon Bros., Fergus	Geese, Pit Games, Dressed Poultry.
Schafer & Goebel, Mitchell	S. C. Black Minorcas.
Schelly, S. J., Brantford	Columbian Wyandottes.
Schelter, C., Fonthill	Barred Plymouth Rocks, Buff Leghorns, White Orpingtons, Red Caps.
Schierholtz, Otto, Elmira	Partridge Plymouth Rocks.
Scott, Peter, Box 227, Guelph	S. C. Brown Leghorns.
Scott, T. H., Union	Anconas.
Seely, Zimri, King St., Iroquois	White Plymouth Rocks, Indian Games.
Serviss, Art., 101 Main St., Galt	Columbian Wyandottes.
Shaw, W. W., Sherbrooke, Que.	
Shea, Thos. M., Fergus	Geese, Ducks, Utility Fowl.
Shether, A. E., 228 15th St., Brandon, Man.	Partridge Cochins.
Sills, E. G., 154 Nelson St., Brantford	S. C. White Leghorns, Houdans.
Simpson, W. W., Guelph	White Wyandottes.
Skinner, Arthur F., Lyon Ave., Guelph	Utility Fowl, Dressed Poultry.
Sleeman, Jno. H., 356 Waterloo Ave., Guelph	Barred Plymouth Rocks.
Smith, W. M., Scotland	La Fleche.
Snyder, Henry E., Guelph	S. C. White Leghorns.
Sollitt, J. E., & Hobbs, Oshawa	S. C. White Leghorns.
Speiron, C. E., 447 Talbot St., London	Columbian Wyandottes, Black Orpingtons.
Spiars Bros., 59 Deavonshire St., Guelph	G. Duckwing Game Bantams, White Rose Comb Bantams.
Spry & Mick, 144 Dundas St., Toronto	Buff Wyandottes.
Stapleford, S., Watford	Black Red Games, Pyle Game Bantams.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.—*Continued.*

NAME AND ADDRESS.	VARIETY.
Stark, Mrs. Jas., Ashgrove	Dressed Poultry.
Steer, Wilbert, 170 Hamilton Rd., London	Pigeons.
Stephenson, Geo. W., 180 Emma St., Sarnia	Light Brahmas.
Stevens, Alton, Lambeth	Light Brahmas, White Wyandottes, Silver Bearded Polands, Turkeys, Geese, Ducks.
Stevenson Bros., 129 Finkle St., Woodstock	Pit Games, Buff Cochin Bantams.
Stevenson, Samuel, Grand Valley	White Plymouth Rocks.
Stirling, J. H., Box 232, Eglinton	Buff Orpingtons.
St. Lawrence Poultry Farm, St. Laurent, Que.	Dressed Poultry.
Stobbs, W., 200 St. Clair Ave., Moore Park	White Orpingtons.
Stuart, Wm., 54 Strange St., Guelph	Bantams.
Sutherland, A., 12 Clark St., London	Pigeons.
Sutherland, J. B., Strathroy	Polands.
Swartout, Ross, Newport	R. C. Black Minorcas.
Switzer, A. H., Woodham	Plymouth Rocks, Leghorns, Andalusians, Brown Chinese Geese, Indian Runner Ducks.
Symon, James, Acton West	Black Orpingtons.
Taber, Arthur S., Scarboro	Leghorns, Colored Dorkings, Dressed Poultry.
Taylor, Douglas T., Quebec, Que.	Light Brahmas.
Taylor, Rev. J. G., Box 157, Woodstock	S. C. Brown Leghorns.
Teale, W. J. Guelph	A. O. C. Langshans, Pyle Game Bantams, Pigeons.
Teeswater Poultry Yards, Teeswater	S. C. White Leghorns.
Telfer, Joseph, Milton West	Games, Turkeys, Geese, Rabbits.
Teskey, R. J., St. Mary's	S. C. Black Minorcas, Pigeons.
Tew & Co., Richard, 23 Scott St., Toronto	Rhode Island Reds.
Thompson Bros., Port Dover	Orpingtons.
Thompson, Geo., 143 London Rd., Guelph	Buff Cochin Bantams, Rabbits.
Thorne Bros., London	Barred Plymouth Rocks, R. C. White Leghorns.
Tilt, C. A. R., Doon	Dark Brahmas, Black Cochins, Black Langshans, Bantams, Geese, Ducks.
Timm, Fred., 181 Turk St., Berlin	White Wyandottes.
Tomalin, J., 593 Ossington Ave., Toronto	Dressed Poultry.
Topping, N., Tambling's Corners	Indian Games, Any Variety.
Tozer, H. R. K., 509 Richmond St., London	Black Sumatra Games, Partridge Cochin Bantams.
Trimble, Geo., 760 Indian Rd. W., Toronto	Pigeons.
Trebilcock, A. H., 889 Lorne Ave., London	Game Bantams.
Trojand, E. J., 133 Wellington Ave., Windsor	Buff Wyandottes.
Trotter, Thos. R., 68 Russell St. W., Lindsay	S. C. White Leghorns.
Tyson, A. W., 39 Melleville St., Guelph	Game Bantams.
Underwood, Ira S., 108 King St. E., Berlin	Anconas.
Vance, Geo., 89 Light St., Woodstock	Barred Plymouth Rocks.
Vaughan, F. & T., Toronto	S. C. Black Minorcas.
Vickers, Thos., Owen Sound	White Minorcas.
Vidal, H. F., Sunnybank, Beamsville	Black Orpingtons.
Vogt, C., 137 Dunn Ave., Toronto	Rhode Islands Reds.
Vout, Robt. W., 36 Pearl St., Brockville	White Wyandottes.
Waide, D. G., Adelaide St. N., London	Pigeons.
Wales, F., Milton	Partridge Cochins, S. C. White Leghorns, Anconas, Silver Grey Dorkings, Houdans, Polands, Hamburgs, Dressed Poultry.
Walker, W. R., 43 Surrey St. W., Guelph	Black Red Game Bantams.
Wallace, Wm. A., Kars	Plymouth Rocks.
Ward, Edward G., Crosshill	Dressed Poultry.
Ward, W. H., 347 Piccadilly St., London	Partridge Wyandottes.
Wardell, Thos., 256 Dundas St., Woodstock	S. C. White Leghorns.
Warrington, J. H., Cornwall	Javas, Black Sumatra Games, Spanish Dorkings, Creve Coeurs, Sultans, W. Booted, Bearded Bantams.
Watson, Hugh, 4 Winthrow Ave., Toronto	Dressed Poultry.
Watson, Strafford, 580 Avenue Rd., Toronto	Pigeons.
Webster, Frank, 169 Neeve St., Guelph	Pigeons, Rabbits.
Wees, Burt. M., Box 405, Sarnia	Silver-laced Wyandottes.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT WINTER FAIR, 1911.—*Concluded.*

Name and Address.	Variety.
Westman, A. H., 226 Granton	Orpingtons.
Wheadon, R. L., Bracebridge	White Wyandottes, S. C. White Leghorns, Black Orpingtons, Black Hamburgs, Black R. C. Bantams,
Whitney, C. J., Galt	White Plymouth Rocks.
Whittaker, Wilfred W., Guelph	Barred Plymouth Rocks, Utility Fowl, Dressed Poultry.
Whittemore, F. M., Waterdown	S. C. Brown Leghorns.
Wicks, Frederick, Bedford Park	Buff Orpingtons.
Willoughby, J. H., Prison Farm, Guelph	R. C. Rhode Island Reds, S. C. Black Minorcas.
Wilson, C. H., Hawkestone	Dark Brahmas, Cochins, Leghorns, Houdans, S. S. Hamburgs.
Wilson, Henry, Ashgrove	Buff Orpingtons, A. O. V. Turkeys, Dressed Poultry.
Wilson, Wm., 219 Grange St., Guelph	White Wyandottes, White Orpingtons.
Winstanley, Thos. T., 12 Emma St., Guelph	Barred Plymouth Rocks.
Wismer, Bert., Preston	African Geese.
Wolfe & Marshall, Box 1225, Galt	Game Bantams.
Woltz, C. Herbert, Eramosa	White Wyandottes.
Worthington, C. D., Guelph	Dominiques, Black Javas, S. C. Rhode Island Reds, Andalusians, Buff Orpingtons, Black Hamburgs, Pigeons, Utility Fowl, Dressed Poultry.
Wood, Garriner, Barrie Hill	Partridge Plymouth Rocks, Dressed Poultry.
Wray, F. E., Box 194, London	Barred Plymouth Rocks, White Wyandottes.
Wray, R. W., Box 194, London	Silver-laced Wyandottes.
Wright, John Ernest, Toronto	Anconas.
Wright, John H., Oakville	Black Langshans.
Wyatt, Hugh, London	Cochins.
Young, Walter C., 512 Oxford St., London	White Orpingtons.

MEMBERS OF THE EASTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1912.

Adams Bros., London	Wyandottes.
Alexander, D. B., Shawville, Que.	Barred Plymouth Rocks, S. C. Buff Leghorns, Buff Orpingtons.
Alexander, S. E., Beachburg	Barred Plymouth Rocks.
Allison, C., Brampton, Box 158	Buff Wyandottes.
Armstrong, A. A., Fergus	Dressed Poultry.
Baker, E. S., Guelph	Andalusians, Turkeys, Geese, Ducks.
Baker, Geo., Simcoe	White Turkeys.
Barker, R. K., 27 Grafton Ave., Toronto	Pigeons.
Barber, W., 118 Roncesvalles St., Toronto	Games, S. C. Black, Leghorns, Game Bantams.
Baptie, Jas., Springville	Silver Wyandottes, Anconas, Hamburgs.
Barr, David, Jr., Renfrew	Wyandottes, Plymouth Rocks.
Baum, John, Steelton, Box 327	Black Orpingtons.
Bartlett & Thompson, Brampton	Barred Plymouth Rocks.
Beauchamp, Philias, Ottawa	Pigeons.
Becker & Sons, West Lorne	Golden Wyandottes.
Becker, R. F., Waterloo	S. C. Brown Leghorns.
Beeson, Geo. C., 299 First St., Ottawa	Pigeons.
Belanger, Jos. P., 101 Bell St., Ottawa	S C. White Leghorns.
Benjamin, E. H., & Co., Ottawa	Old English or Pit Games.
Benson, J. A., & M., Billings Bridge	White Minorcas, Pigeons, Cavies.
Blakely, R. E., 68 John St., Ottawa	A. O. V. Plymouth Rocks, Pigeons.
Blakely, Wallace, 68 John St., Ottawa	A. O. V. Plymouth Rocks.
Bock, E. A., 450 Central Ave., London	White Minorcas.
Bogue, David, Lambeth	Plymouth Rocks.
	Dorkings, Silver Bearded Polands.

MEMBERS OF THE EASTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1912.—*Continued.*

NAME AND ADDRESS.	VARIETY.
Bogue, G. & J., Strathroy	White Cochins, Mottled Javas, Spanish, Colored Dorkings, Houdans, Creve Coeurs, La Fleche, Hamburgs, Polands, Ducks.
Bourgingnon, A. E., 158 Division St., Ottawa	Pigeons, Cavies.
Bradley, Geo. R., Carsonby	Dressed Poultry.
Bullock, W. J., King St. W., Gananoque	S. C. White Leghorns.
Burdin, S. K., Ottawa	White Orpingtons.
Bureau, Arthur, 202 Bolton St., Ottawa	Pigeons.
Burton, Jos., City View	Toulouse Geese.
Bysshe, G. T., 166 Bank St., Ottawa	Hares, Rabbits.
Cabana, Louis, Sherbrooke, Que.	Anconas, White Orpingtons, Bantams.
Capital Pigeon Lofts, Ottawa	Buff Cochin Bantams, Pigeons, Pheasants, Rabbits.
Carriere, T. A., 174 Bolton St., Ottawa	Pigeons.
Casey, Will., Mitchell	Indian Games (laced).
Casselman, A. A., Winchester	Andalusians.
Chant, Rev. J. H., Newburgh	Minorcas.
Collins & Cornish, Ottawa	Light Brahmas, S. C. Brown Leghorns, Silver Bearded Polands.
Corbett, W. F., Box 283, Cornwall	Buff Cochins.
Craig, Geo., 29 Herridge St., Ottawa, East	Old English or Pit Games.
Craig, W J., 254 Flora St., Ottawa	White Plymouth Rocks.
Croshaw, Mrs. W., 165 Russell Ave., Ottawa	White Wyandottes.
Crouch, Sarah, Billings Bridge	Utility Fowl, White Wyandottes, S. C. White Leghorns, Pea Fowl, Dressed Poultry.
Cumming, D., Russell	Leghorns, S. S. Hamburgs, Turkeys, Geese, Pekin Ducks.
Despres, A. C., 99 Albion St., Hull, Que.	Buff Cochin Bantams, Pigeons.
Deverell Bros., Whitby	Buff Cochins, Black Orpingtons, Cochin Bantams.
Dixon, G. A., Ottawa	S. S. Bantams.
Donelly, Miss M., 76 Waller St., Ottawa	S. C. Black Leghorns, Buff Cochin Bantams.
Dowton, Herbert H., Toronto	R. C. Rhode Island Reds.
Dunlop, Chas., Rideau View	Plymouth Rocks.
Dynes, A., 434 Parkdale Ave., Ottawa	Dressed Poultry.
Elgie, Jas. A., 907 Lorne Ave., London	S. C. Brown Leghorns.
Ellis, Gordon, N., Renfrew	G. Sebright Bantams.
Ellis, Sidney E., Renfrew	S. C. Buff Leghorns.
Ellis, Wm., Prescott, Box 182	Minorcas.
Evans, Jas., 304 Ontario St., Toronto	Dressed Poultry.
Eves, W. H., 222 Montreal St., Kingston	S. C. Buff Leghorns.
Ferrier, A. A., Renfrew	Black Orpingtons.
Fletcher, Rev. G. E., Cobden	Black Orpingtons.
Foster, A. H., Twin Elms	Plymouth Rocks, Pekin Ducks.
Fyfe, Geo., Gourock	Dressed Poultry.
Gibbons, L. J., Iroquois	Barred Plymouth Rocks, Aylesbury Ducks.
Gill, Jno. I., 173 Friel St., Ottawa	R. C. Rhode Island Reds, Pigeons.
Gillespie Bros., Ventnor	S. C. Buff Leghorns.
Gisborne, G. S. & F. H., Ottawa	White Orpingtons.
Gormley, John, Pickering	Barred Plymouth Rocks.
Grant, Jno., Rockland	S. C. Black Minorcas, Buff Orpingtons.
Grant, R. G., Hazendean	Dressed Poultry.
Grayston, Harry, 9 Huron St., Ottawa	Silver Wyandottes.
Greenshields, J. S., Danville, Que.	G. Sebright Bantams, Pigeons.
Grimes, Allan, 364 Cooper St., Ottawa	S. C. Rhode Island Reds.
Grose & Kelly, 198 Perry St., Peterboro	Plymouth Rocks, Black Wyandottes.
Gunn, Langlois & Co., Bondville, Que.	R. C. Rhode Island Reds.
Gunning, Jno., Sherbrooke, Que.	Andalusians.
Hall & Son, Chas., Trafalgar	Barred Plymouth Rocks.
Halliday, Thos. J., Queen St., Smith's Falls	Red Caps, A. O. V. Rose Comb Bantams.
Hambly, W. & A., 338 Berkeley St., Toronto	Pigeons.

MEMBERS OF THE EASTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1912.—*Continued.*

NAME AND ADDRESS.	VARIETY.
Hellyer, A. W. E., 69 Belmont Ave., Ottawa	Buff Orpingtons.
Henderson & Billings, St. Mary's	Buff Plymouth Rocks, Leghorns, Black Hamburgs.
Hiawatha Pigeon Lofts, Ottawa	Pigeons.
Hicks, M. G., Perth	White Wyandottes.
Highland Park Poultry Yards, Westboro	White Wyandottes, Dressed Poultry, Utility Fowl.
Higman, Geo., Jr., Ottawa	Partridge Wyandottes.
Higman, Geo., Sr., 61 Sussex St., Ottawa	Wyandottes.
Hintonburg Poultry Yards, 981 Wellington St., Ottawa	Plymouth Rocks, Wyandottes, Rhode Island Reds, S. C. Black Minorcas, Black Orpingtons, Utility Fowl, Black Javas.
Holliday, Wm., Spencerville	Cochins, Houdans, Red Caps.
Hoover, M. R., Locust Hill	Buff Plymouth Rocks, Leghorns.
Hopkins, Mrs. W. E., Cummings Bridge	Barred Plymouth Rocks.
James, F. A., 217 Centre St., Ottawa	Barred Plymouth Rocks.
Kelly, C., 15 Eccles St., Ottawa	S. C. White Leghorns.
King, Fred. W., Observatory Residence, Ottawa	White Plymouth Rocks, Cochin Bantams.
King, T. H., Appin	Andalusians.
Kingsley, Wilfrid, 114 Botelier St., Ottawa	Games.
Kyle, Wm. A., Greensville	Anconas.
Lambertus, J. A., Eganville	Langshans.
Laframboise & Garland, Ste. Scholartique	Plymouth Rocks.
LaRose, Chas., Cornwall	Barred Plymouth Rocks, Indian Games, Andalusians, Black Hamburgs, Bantams, Dressed Poultry.
Lathey, Knowlton, Ottawa	Silkies.
Lathey, M. A., Box 413, Ottawa	White Plymouth Rocks, Black Wyandottes, Silkies.
Latour, Ernest, Mont Laurier, Que.	Light Brahmas.
Lawless, Edward, Grafton	Orpingtons.
Lawson, J., Almonte	B. B. Red Games.
Lawson, J. W., Spencerville	Buff Plymouth Rocks, R. C. Black Minorcas.
Lemon, W., Lynden	Silver Wyandottes.
Mason, J., & Son, 188 Turner St., Ottawa	Buff Wyandottes, Bantams.
Mason & Wadsworth, 188 Turner St., Ottawa	Silkies.
Millard, I. K., Box 175, Dundas	Barred Plymouth Rocks.
Moore, Allan, Billings Bridge	Leghorns.
Morin, Edmond, 77 B. King St., Sherbrooke	White Plymouth Rocks.
Mulville, J. V., Westport	Black Orpingtons.
McBride, Alexander, Cobden	A. O. V. Plymouth Rocks.
McCaffray Bros., Russell	Buff Plymouth Rocks.
McCurdy, R., 176 St. George St., London	Langshans.
McDougall, E. C., Fairfield East	Buff Orpingtons, Houdans.
McInnes, G. A., 84 Dibble St., Prescott	S. C. Black Minorcas, Bantams.
McIntosh, P. A., M.D., Spencerville	Dark Brahmas, Buff Plymouth Rocks, Black Wyandottes, Black Javas, Games, Leghorns, Spanish, Andalusians, White Minorcas, Silver Grey Dorkings, Hamburgs, Red Caps, Golden Unbearded Polands, Turkeys, Geese, Ducks.
McKeller, Donald, Hawkesbury	S. C. White Leghorns.
McLeod, K. K., Dunvegan	S. C. Brown Leghorns.
McMurtrie, 84 Harvard Ave., Toronto	Pigeons.
McNeil, Wm., 778 Waterloo St., London	Polands, A. O. S. V. Bantams.
Neate, M. C., 35 Sussex St., Ottawa	Barred Plymouth Rocks, S. C. White Leghorns.
Nicholson, Misses L. & E., New Glasgow, Que.	Barred Plymouth Rocks.
Oke, Richard, Box 361, London	La Fleche, Hamburgs, Bantams.
Osborne, W. M., Brockville	S. C. Black Leghorns, White Minorcas.
Page, Maurice, Sans Bruit, Que.	Rabbits.

MEMBERS OF THE EASTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED AT THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1912.—*Concluded.*

Name and Address.	Variety.
Patterson, Robert, 48 Elizabeth St., Guelph	Wyandottes.
Phillips & Folkard, 309 LeBreton St., Ottawa	Leghorns, Buff Orpingtons.
Poole, F. C., 116 Flora St., Ottawa	S. C. Rhode Island Reds, S. C. Black Minorcas.
Pranschke, W. C., 86 Concord St., Ottawa, E.	Columbian Wyandottes.
Pratt, Anson H., 334 Lewis St., Ottawa	Hares, Rabbits.
Pringle, John 187 Wortley Rd., London	Barred Plymouth Rocks.
Pritchard, Jack, N. Wakefield, Que.	C. Indian (laced) Games.
Pt. Fortune Poultry Yards, Pt. Fortune, Que.	Dark Brahmas, Black Javas, Games, S. C. Black Minorcas, Silver Grey Dorkings, Hamburgs, Polands, Silkies, Black Red Game Bantams, Bantams, Utility Fowl.
Readwin, A. & T., Guelph	Black Wyandottes, S. C. Black Leghorns, Pigeons.
Reid, W. H., Kingston	Pigeons, Pheasants.
Ritchie, Jno. M., Allans Mills	S. C. White Leghorns.
Riverside Poultry Yards, Carleton Place	Partridge Cochins, White Wyandottes, Andalusians, S. C. Black Minorcas, Red Caps, A. O. V. Fowl, Pigeons.
Robertson, Geo., Box 242, Ottawa	White Plymouth Rocks.
Robinson, E., Box 26, Westboro	S. C. Black Leghorns.
Robinson, S. F., Arthur St., Gananoque	S. C. Black Minorcas.
Rock, F., Mechanicsville	Old English or Pit Games.
Rook Bros., King St., Prescott	Game Bantams.
Sanderson, Arthur, 507 McLeod St., Ottawa	Rabbits.
Saunders, Jas. H., Carleton Place	Buff Cochins.
Sauve, P. H., Montreal, Que.	Light Brahmas.
Schelly, S. J., Brantford	Columbian Wyandottes.
Shaw, C. G., 85 James St., Ottawa	White Wyandottes.
Shireffs, John, Rockland	Buff Orpingtons, Utility Fowl.
Slinn, T. G., 208 Patterson Ave., Ottawa	Leghorns, Utility Fowl.
Slinn, W. H., 208 Patterson Ave., Ottawa	Dressed Poultry.
Smith, Jas., Rockland	White Orpingtons.
Smith, Wm. A., 905 Carlaw Ave., Toronto	Bantams.
Snetsinger, Jas., Eamer's Corners	Dark Brahmas, Games, Leghorns, Spanish, White Minorcas, White Orpingtons, Dorkings, Red Caps, Bronze Turkeys, Ducks, Dressed Poultry.
Swartout, Ross, Westport	R. C. Black Minorcas.
Thompson, Geo. K., Whitby, Box 367	White Plymouth Rocks, Silkies, A. O. V. Ducks, Pigeons.
Thomson, J. Ross, Westboro	White Orpingtons.
Topliffe, W. E., Glenvale	Barred Plymouth Rocks.
Trimble, Geo., 760 Indian Rd., W. Toronto	Pigeons.
Vogt, C., 137 Dunn Ave., Toronto	Rhode Island Reds, Black Orpingtons.
Vrooman, W. J., Tutela	A. O. S. V., R. C., Leghorns.
Wadsworth, G. F., 96 Carling Ave., Ottawa	Columbian Wyandottes, Pigeons.
Walker, S. M., Fairfield East	S. C. Rhode Island Reds.
Wallace, Wm. A., Kars	Plymouth Rocks.
White, F. A., L'Annunciation, Que.	Barred Plymouth Rocks, S. C. White Leghorns, R. C. Black Minorcas.
Wilson, C. H., Hawkestone	Dark Brahmas, Leghorns.
Wilson, Peter, Cobden	White Plymouth Rocks, Golden Wyandottes.
Warrington, J. H., Cornwall	White Cochins, Wyandottes, Javas, India Games, Spanish, R. C. Black Minorcas, Dorkings, Houdans, La Fleche, Creve Coeurs, S. S. Hamburgs, Red Caps, Polands, Silkies, A. O. V. Fowl, Bantams, Cayuga Ducks.

REPORT

OF THE

FARMERS' INSTITUTES

OF THE

PROVINCE OF ONTARIO

1911 and 1912

PART I.—FARMERS' INSTITUTES.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1913.

Printed by
WILLIAM BRIGGS
29-37 Richmond Street West
TORONTO

To His Honour Sir John Morison Gibson, Knight Commander of the Most Distinguished Order of St. Michael and St. George, a Colonel in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

May it Please Your Honour:

I have the pleasure to present herewith for the consideration of your Honour the Report of the Farmers' Institutes of Ontario for 1911 and 1912.

Respectfully submitted,

JAMES S. DUFF,

Minister of Agriculture.

Toronto, 1913.

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Farmers' Institutes of Ontario, 1912

To the Honourable the Minister of Agriculture.

Sir,—I have the honour to submit herewith the 18th Annual Report of the Superintendent of Farmers' Institutes published in Part I and Part II, the latter consisting of lists of meetings, speakers, and their subjects, statistics, financial statement, etc.

We did not issue Part I of the Report for 1911. The various reports sent to institute members covered a wide field, and as there was no Convention of Farmers' Institutes and Farmers' Clubs that year, it was decided not to publish a separate report from this branch.

While the attendance at *regular* Institute Meetings shows a falling off during the past few years, the number who took advantage of the various meetings and short courses in Stock and Seed Judging in 1911-12 was considerably above the records of former years. The attendance at Farmers' Institutes, Better Farming Special, Fruit Institutes, Short Courses, Factory meetings, etc., totalled 173,500 The farmers in many localities state that it is more difficult for them now than a few years ago to attend the institute meetings, largely on account of lack of a sufficient amount of reliable labour. Then again, the population in many of our rural districts shows a decrease as compared with ten or fifteen years ago. While the attendance at the institute meetings is somewhat disappointing, the local officials of the Institutes and the lecturers representing the Department report a keen and intelligent interest on the part of those taking advantage of the work. In addition to the Institute meetings, there were fifty-six Short Courses held during the winter of 1911-12, while speakers were sent to a number of Special Fruit and Farmers' Club Meetings. A keen interest was shown in all these features.

Probably no line of work can be made of greater value to a locality than that of a Farmers' Club. Please refer to pages 50 to 61 for information regarding this feature of work. These organizations have been most active during the past year, largely as a result of the encouragement given them by District Representatives. In many localities, even in sections where representatives are not located, the club work has come into prominence.

No branch of work undertaken by the Institute Branch has been more enthusiastically supported than that of the Women's Institutes. No only has there been rapid growth in the number of organizations and membership, but a broadening and thoroughness in the work undertaken by them. While they continue to give prominence to household matters, more and more attention is given to the betterment of social conditions in our rural districts. The women of the country are acquiring a broader outlook and a keener interest in community matters, which cannot but result in greatly improved social, educational and economic conditions in rural Ontario.

The Department has thought it well not to include in this volume all the material intended for it. Articles bearing on "The Horse Industry," "Beef Production," and "Alfalfa" were prepared, but as it has been decided to publish bulletins covering these subjects as well as others of general interest, they have been withheld to appear in bulletin form. Bulletins have already been published covering "Farm Poultry," "Weeds," "Dairying on the Farm," "Cheese Making and Butter Making," "Fruit Industhy," etc. These will be revised from time to time and new issues got out. We believe the farmers will appreciate separate bulletins, each covering some definite branch of the farmer's work, rather than to be furnished with reports from year to year covering a variety of subjects but not dealing with any exhaustively.

While our readers will find only a few articles in this volume, we wish to draw their attention to the papers and addresses which appear in the other publications to which members of the farmers' institutes are entitled—reports of the Dairying Association, Live Stock Associations, Agricultural College, Experimental Union, as well as the Bulletins sent out from time to time.

We again appeal to the farmers to join with the Department in making of the institutes a steadily growing influence for agricultural betterment.

Geo. A. Putnam,
Superintendent.

Farmers' Institutes of Ontario, 1912

A CONVENTION OF FARMERS' INSTITUTES AND FARMERS' CLUBS WAS HELD IN ST. GEORGE'S HALL, TORONTO, ON THE 12TH AND 13TH NOVEMBER, 1912.

GEORGE A. PUTNAM, Superintendent of Farmer's Institutes, after calling to order the large and representative gathering of delegates, as well as a number of District Representatives and Institute Lecturers, said: "The Farmers' Institutes in Ontario, so far as the central control is concerned, have been more or less, a one man institution. Their success, however, has depended largely on the men in the field."

The first item on the programme calls for statements from some of our institute officers as to the methods which they have followed in making the Institute a success. The work has been more or less effective in all sections. It has seen its up and downs, and some institutes are not thriving as they did at one time. I will call on some of the men who have been successful in the management of their own local institutes to address us regarding their experiences.

H. D. H. MCDIARMID, Stormont County: As secretary of an Institute, I have failed to get the Directors to take the interest in the work that they should, for the simple reason that they are unpaid officers, and they feel that the secretary is paid to do the work. While the secretary must shoulder the responsibility, the directors must assist if the work is to be a success. I have found that mailing posters a couple of days before the meeting has had a good effect. If you send them a week or two before the date of the meeting, the farmers are apt to forget about the meeting. I have also found it a good plan to send private letters to friends urging them to attend the meetings.

A. J. FALLIS, Durham County: In planning our meetings down in East Durham we always consider how we are going to give the most help to the greatest number. We expect help from the delegates who are sent out to us and from local men. We look upon the help that we get from local men as a very important part of our meeting, and we consider a good lively discussion as very helpful. The delegates who have been sent to us from the Department have been good men, and men who have tried to do their duty and I believe we should show every consideration towards them. You will find successful men in almost every district, and the thought comes to you "Why are not all men successful? They are all working under the same conditions as to soil and climate." Sometimes we farmers who are not successful are prejudiced against the farmers who are. That is not the proper attitude, we should try to get the secret of their success. It is usually difficult to get these men to take part in the proceedings.

We always try to be on time at the meetings, and when we get to the hall we do not walk up to the front and stay there until the proceedings close, that is a mistake. Farmers as a rule are somewhat reserved, and we get right down among our men and greet them with a hand shake and introduce as many of them as we can to our delegates. This helps the delegates to get acquainted with local conditions. When you get the members talking with the delegates before the meeting, you will find that you will have very little trouble during the meeting in keeping up the discussion.

We get out large posters two weeks or ten days before the meeting, and a day or two prior to the meeting we send out dodgers and have them distributed at the schools. If the meeting is to be held on Monday, I have the dodgers in the hands of the children on Friday. If you can get a few influential men in the district at work, it is worth all the advertising material you can put out. It was our practice at one time to select the subjects for each meeting and have them printed on the bills. I said to a man from a place where a meeting was to be held, "You will be at the meeting," and he said, "No, you have all the best subjects at Millbrook." After that we put the full list of subjects on the bill, and did not specify what would be taken up at any particular place, and we allowed the people to choose their own subjects. One man said to me after a meeting was over, "I would have liked to have asked a certain question," and I said, "Why didn't you?" and he said, "That subject was not on the paper." If a man comes to a meeting for information we should try to give it to him, if we can. We have adopted the plan of allowing fifteen minutes after the close of an address for the purpose of asking questions on subjects that have not been up for discussion. I do not think it is wise for the secretary to canvass a meeting while an address is being delivered. We draw attention to the importance of membership during this fifteen minutes and canvass for members. We have a district representative, and he is a good man and gives us all the help he can. Last year the Department sent us a lady and a gentleman, and the Women's Institute had a meeting each afternoon. A lunch was served for the delegates and the officers, and we had about three hours on our hands between the afternoon meeting and evening session, when we had a Farmer's Conference, or round-table talk, and in that way we got a lot of useful information.

I think the annual meeting is very important, because it will determine the work for the year. Our Institute does not ask for a speaker for this meeting, because we require all the time for business. Our Representative is always there, and we consider him one of our own boys. In order to secure a large attendance at the annual meeting, we have adopted the plan of appointing two delegates as well as the two directors from each district to attend the meeting. In this way we have four chances to two of having a large attendance.

THE CHAIRMAN: Some people have said that the Institute has seen its best days, I can assure you that it is not the case when we have men like Mr. Fallis managing local organizations (Applause). There are just as great possibilities in this work as ever.

CHAS. O' REILLY, Norwood: We have been holding meetings since the first Institute was organized in Ontario. We have not been able to get the local men to readily take up discussions at the meetings, although we have men in the district, who are competent to lead in discussion.

J. I. GRAHAM, Vandeleur: I have found the Women's Institutes of great assistance in advertising our meetings. Our District Representative has organized a number of Farmer's Clubs. They are of great assistance and we are having better meetings which are attended in larger numbers than formerly.

J. M. MCCALLUM, Shakespeare: Last winter was one of the best seasons we have had, and I attribute the success to the demonstration meetings at the afternoon sessions. I believe that the Institutes are doing better in the counties where they have a District Representative.

ONTARIO FARMERS' INSTITUTES.

GEO. A. PUTNAM, SUPERINTENDENT.

It is a pleasure to meet with representatives of the Institutes throughout the Province, and it is indeed encouraging to see such a large number of Institute and Farmers' Club men in attendance. You are the men who have made it possible to accomplish the good which has attended the combined efforts of the Department and the Local Organizations. The latter is essential in agricultural educational work, if it is to be effective.

The primary objects of Farmers' Institutes are the dissemination of agricultural knowledge and the development of local talent. No one doubts the effectiveness of the Organization in taking to the very doors of the farmers, information along agricultural lines, but, in the latter respect, the development of local talent, the Institutes have not been so effective.

It is, indeed, gratifying to officers, lecturers and departmental officials to have evidence throughout the whole Province of the beneficial results of Institute meetings. Many farmers have been induced to weed out their dairy herds and grow crops with a view to lessening the cost of milk production, while up-to-date dairy stables have been installed; the systematic breeding of a better class of horses is another result; improvement in the quality of beef animals, the introduction of alfalfa, improvement of seeds, encouragement of the bacon industry, the more scientific cultivation of the soil, underdrainage and many other improved methods are a direct result of lectures delivered by Institute workers. The result, up to the present, has been satisfactory; and those who are in touch with agricultural advancements, are of opinion that the Institute has done possibly more than any other organization in inducing farmers generally to improve their methods. We are convinced that with the hearty co-operation of the local organization and a systematic effort on the part of all the forces available, the holding of meetings under the auspices of the Institute, or a modification of the Institute, can be made a still more prominent factor in the agricultural development of the country. I use the word "development" advisedly, for as yet, we have not reached a very high state of agriculture even in Old Ontario. While we have made rapid strides in orcharding during the past few years, the Director of our Fruit Branch, and those associated with him, realize that there is much yet to be done, especially in the matter of packing and marketing the fruit. The use of fertilizers is, as yet, largely a matter of experiment, but the farmers are beginning to ask more and more questions upon this important feature. In some sections, the farmers are specializing in the growing of certain crops—beans, seed corn, tomatoes, small fruits, etc.—but the great bulk of the land under cultivation in Ontario is, as yet, not farmed, along what can be termed intensive lines. Although too large a margin exists between the average and the possible average. There is a great work to be done by all the forces which can be mustered in the further development of Ontario agriculture. The Institute has been one of the leading forces towards attaining this object in the past, and there is no reason why it should not continue to exert a powerful influence towards agricultural betterment.

One of our Institute secretaries told me only to-day that he had been induced to grow alfalfa, and that several of his neighbours had been induced to do the same, through the Institute meetings; and he was convinced that if it had not been for the president and his lecturers continually hammering at the subject.

alfalfa would not have been grown to any extent in the district, Essex County. He said he has cut his fourth crop this year. He also told me of one farmer who had gathered 190 bushels of ear corn from one acre of land. Many sections of the Province can point to similar results of the instruction given at Institute Meetings.

We must, however, face the conditions as we find them in reference to our Institute work. While the attendance at all meetings under the direction of the Institutes Branch is becoming larger and larger from year to year, and we are convinced that all things considered better work is being done than ever before through the various forms of meetings and special classes, the fact remains that the old time Institute meeting is not *apparently* so effective in reaching and benefiting the farmers as it once was. Even in the banner years of the Organization, so far as attendance at the regular Institute meetings is concerned, the Organization was not supported by the farmers generally in keeping with its importance and its money value to the agricultural communities. Let us consider the following facts:—

(*a*) The average attendance is not what it once was.

(*b*) The membership has fallen off somewhat.

(*c*) There is not the same readiness as formerly to assist on the part of local speakers.

(*d*) The finances of many of the Institutes are not in a healthy condition.

(*a*) Attendance. Because of the fact that it is more difficult from year to year to secure competent farm help, especially on the stock farms, and also because of the fact that many of the younger people have been attracted to the cities and towns and to the new provinces of the West, it is more difficult than formerly to induce large numbers to attend the meetings. Then again, those who do come are not drawn there because of the novelty of the meetings, but come for the purpose of gathering information along agricultural lines. So, while the attendance is somewhat smaller than formerly, we are not justified in concluding that the average farmer is less interested.

(*b*) Membership. It has always been with more or less difficulty that the officers of the Institutes have induced the farmers in large numbers to become members; and with the marked improvement in the agricultural press and the circulation of larger numbers of farm papers, the farmers possibly do not feel the necessity so keenly as formerly to become members of the Institute in order to secure Departmental literature. No farmer can afford even for a fee of $1 to be without the Departmental reports from year to year. Let us consider whether or not our fee of 25c. is large enough.

(*c*) The majority of Institute Officers find difficulty in securing local men to give addresses or even to take a leading part in the discussions at the Institute meetings. I suppose we can hardly expect the farmers generally to appear upon the same platform with regular workers, until we have local organizations in which they will be able to gain more or less experience in public speaking. We had hoped that the Farmers' Clubs would prove a training ground for a large number of such workers; and while some of the Club workers are assisting locally from time to time, we hope to see the number largely increased.

With reference to finances, I may state that the Institutes generally have been judicious, and have shown economy in the expenditure of their funds, and the majority have made efforts to raise funds by special means to supplement the Government Grant and the membership fees. Those who have not made some special effort to raise funds are not able to carry on the work in an aggressive way with the resources at their command. We must leave it to the Institutes to suggest ways and means whereby the financial position of the Institutes may be strengthened.

It would appear that if success is to attend our efforts in the future, we must have some, if not all, of the conditions which I beg to submit for your consideration.

(*a*) A keen interest on the part of the officers, directors and members. While the great majority of the officers, especially the Presidents and Secretaries, are doing their part nobly, and often in the face of many discouragements, to make the work a success, there is evident need in a few districts of a renewal of interest and more general co-operation on the part of the officers, directors and members.

It has always been a problem to those who have been connected with this work as to why a larger number of farmers, especially the poorer class of men, do not take advantage of the meetings. This is the cry at the annual meeting of the American Association of Farmers' Institute Workers which is meeting at this time at Atlanta, Ga. They all state that it is difficult to get the indifferent farmers to come out to the meetings and try to improve their methods. We have not been able to get in touch with as many of these indifferent farmers as we would like, but we believe that the work of the District Representatives and the demonstration work at short courses is bringing out a larger number of these farmers than ever before.

Mr. Fallis has already referred to the difficulty of getting local men to take part at the meetings. I find that an Agricultural meeting is not a success unless the men in attendance are given an opportunity to take part in the discussion in order to bring out those points which are of greatest interest to the particular locality.

It is useless to attempt to continue the work in some localities with the available funds. The officers are forced to economize in every way, and dare not go beyond certain limits in advertising, rental of halls and other necessary expenses. The resources are the same as fifteen years ago, but the cost of advertising, rent of halls, transportation and general expenses are considerably higher.

An organization which is to continue to do aggressive work, must introduce new blood from time to time. We must have a larger number of young men associated with the active work of the Institute, if it is to be a permanent organization. Our most efficient officers, especially Secretaries, are those who have been in the work for many years. It would be well, however, for us to ask ourselves whether or not the organization would be made more effective by changing some of the officers in some districts, especially the President, more frequently.

Our policy has been, during the past three or four years, to gradually increase the number of Short Courses in stock judging, which have proven to be a most interesting and profitable form of instruction. This has resulted in lessening to a limited extent the number of Institute meetings. It is the policy of the Department to still further extend this feature.

There is no question, but that the local Club can be made a medium for most effective work along agricultural lines. Without a local organization to keep up the enthusiasm created by the holding of an Institute meeting, we cannot hope for the most effective work. In some of our counties, we have reached the stage when we think it well for the local Club to be made the basis of the District Institutes. This method has been followed effectively in connection with the Women's Institute Organization, and I see no good reason why the farmers, as well as the women, should not be required to hold meetings on their own account before they will be given assistance from the Department. I recognize the difficulty of changing from an established system to another. We have asked the Institutes in Waterloo County to make the Club the basis for the district organization, and this year we have recommendations from the Clubs as to places of meetings and subjects to be dealt with. We hope to be able to report success at the end of the season in this new feature.

With an effective central management and active, permanent, co-operating, local associations, there is needed only the connecting link in a capable corps of field workers to make the organization for Institute work complete and effective. This corps of workers should be composed of a certain number of men and women of special scientific training, with a larger proportion of those who have made good as practical men and women. All should have an up-to-date knowledge of the work and aims of the Agricultural College and Experiment Station, and be in full sympathy therewith.

Owing to the conservative questioning and sometimes even suspicious attitude of the farmers, most of the field workers should be actual farmers, who have demonstrated on the farm the practical value of the principles and methods which they advocate. Other things being equal, the most suitable Farmers' Institute exponent of the teaching of the Agricultural College and Experiment Station is the agricultural graduate, who subsequent to graduation has devoted several years to successful farming or home-making.

We have difficulty in inducing the farmers with large interests, especially the stockmen, to undertake Institute work. They cannot risk leaving their stock to the care of others. More is required of Institute workers than in the early days of the Organization. The farmers generally are familiar with advanced methods and as a result criticize more severely and question more closely.

You have been called together with a view to discussing, thoroughly and frankly, the problem of Farmers' Institute work.

HOW FARMERS' INSTITUTE WORK HAS BEEN A SUCCESS IN LAMBTON COUNTY.

E. F. Augustine, Cairo.

I might state that when I took in hand the secretaryship for East Lambton, some two years ago, our district stood sixteenth in the list for membership, and away down low for attendance. To-day East Lambton stands amongst the foremost for membership, while the attendance at the twelve points of meeting held last year was 2,797, and the number of papers and addresses given was 83.

I have been asked to tell at this conference how this gratifying success has been attained. To put the whole subject in an epitome, I would say it has been accomplished by a splendid co-operation of labor and forceful thoughtfulness of the officers of our local Institute, and the Superintendent of the Institute Branch, Toronto. Working hand in hand, we have shown the agricultural class of East Lambton that the Farmers Institute is not a dead Government Institution, but a real live issue, touching every phase of their every day labors, and demonstrating by practical and plain addresses and actual demonstrations in orchard and farm operations the latest and most up-to-date research in scientific agriculture simplified for the comprehension of the everyday farmer. For the key-note to successful agriculture to-day, you may call it what you will, is purely scientific research simplified and applied to every day farming operations.

Our Institute has during the last two years made many a call upon the Department at Toronto for the very best talent in special lines of work that the Department could supply, and our call has always been nobly responded to by our superintendent and his staff, and the farmers of East Lambton have shown their appreciation of our combined efforts by swelling our membership list to its gratifying proportions. This system of securing the very best agricultural and horticultural talent procurable, has been very expensive to the treasury of our local Institute, so that we have never had but a small surplus at the close of the Institute year, and, in fact, the officers have sometimes remitted a portion of their legitimate salary to bring out the balance on the right side of the ledger; still, we think it is better to have all the money applied for the real benefit of the members of our organization, than to have a large surplus lying idle in the treasury.

Two more important factors of our success I must touch upon before closing. One of these is the cordial co-operation of the Women's Institute of East Lambton. With the sympathetic assistance of the ladies and a short programme of the best musical talent procurable, our evening meetings have been an unqualified success.

The other factor is the hearty co-operation of our District Representatives, whose efforts have ever been to make agriculture in the county of Lambton by every means in their power take the place among scientific professions that it deserves. Working along these lines, the Department, the Institute, and the District Representatives have planned a co-operation programme for the coming season's work which, we feel assured, will be of special benefit to the farming community of our county.

Summing up then: Hard labor, thoughtful plannning, and trustful co-operation of the Farmer's Institute, the Women's Institute, the District Representative, and the Department at Toronto have combined in building up the prestige of the Institute, and the wellfare of the agricultural class in Lambton, the county of awakened progressiveness and magnificent promise.

F. L. ARNOLD (Kent County): It is hard to get the young men to take part at the meetings. I believe that the Farmers' Clubs are going to be of great assistance in this regard. (Applause.) I believe the Farmers' Clubs are the connecting link between the farmers of the Province and the Department at our back.

A MEMBER: Where do you think is the best place to hold a club meeting, the school house or the home?

MR. ARNOLD: I think the school house. There are lots of times that it is a great inconvenience to hold the meeting at a private house.

A MEMBER: Can you get the young men to take part at the school?

MR. ARNOLD: Yes, if your meeting is interesting. If you cannot get the young men out in any other way, give them a special invitation to come and take part. Until recent years there was a debating society at Kent Bridge. I have traced its history since 1840. That debating society has turned out some very prominent men, among them lawyers and doctors. When one of the Inspectors came to Kent Bridge we had quite a discussion. The next morning he said to me: "Arnold, this is the worst place I ever struck in my life." I said, "Why?" He said, "At most places we make our speech and go away, but here I find the people walk up one side of you and down the other and ask all kinds of questions." I said, "It's because we don't know, and we are anxious to find out," and there is, I think, the point of the whole meeting.

THE CHAIRMAN: There is no question but you must have some definite object in view and some definite plan. There must be something more than a mere coming together. This Farmers' Club question is very important, and I do not know that we can do better than discuss it for a short time.

WM. DEAN (Wabash Club): We had great difficulty in getting our people to stand up and say they would become members of a club when we held our initial meeting. Then we went around and saw eight of the most influential farmers, and we requested them to stand up when we asked for members, and by making a start in that way we got 65 members, and we have succeeded in keeping them together. We have had seven meetings since we organized last January, and at four of these meetings we have held debates. Generally the whole meeting takes part in the debate after the regularly chosen speakers have finished.

THE CHAIRMAN: It is difficult to get a representative number of farmers at an annual meeting. These meetings, according to our Rules and Regulations, must be held in the month of June. We would be glad to hear from some of you with regard to making the annual meeting a success.

A MEMBER: Do you think it is a good plan for the Vice-President to succeed the President each year?

THE CHAIRMAN: That largely depends upon the man. I think it is a good plan to pass the presidency around, and I think it is well to change at least every two years. In a great many districts they appoint a new president every year.

GEO. SEXSMITH: We promote our vice-president each year. We have only departed from that once in fourteen years. We do not elect our vice-president and president from the same place. We try to keep up the interest by changing about. This gives the young man a chance.

CHAIRMAN'S ADDRESS.

W. B. ROADHOUSE, Deputy Minister of Agriculture, took the Chair at the evening Session, and said: I have had placed in my hands a very interesting programme for this evening's meeting, and it is my purpose to present it to you with very few words.

This, as you are aware, is a conference of Farmers' Institutes and Farmers' Clubs, and in the apportionment of the programme of the conference, to-night is to be devoted to the interest and welfare of Farmers' Clubs. I need hardly point out that the relationship between the Institutes and the Clubs is one of co-operation, not one of conflict. I think I may even go so far as to say that the Farmers' Clubs are an off-shoot of the Farmers' Institutes. They are a child of which the Institutes have every reason to be proud. They have every reason not only to be proud, but to assist and co-operate and encourage them in every way in their power. During the last few years the Farmers Club movement has progressed so rapidly that there are in the Province to-day something over 200 clubs. Many of these are live, active, and aggressive organizations, which have accomplished big things in their respective communities. The Farmers' Club is the realization of an idea which is becoming more and more prevalent in our work in the Province at the present time; that problems are local, and that these problems must be attacked and must be solved in their locality, if they are to be worked out in the Province as a whole. To improve the conditions of a locality is to improve, to that extent, the conditions of the Province. To improve the prosperity or happiness of the individual is to contribute that much to the uplift of the Province. By working in this way and by attacking the problems in their locality and working them out in accordance with their local conditions and surroundings, we find that we are accomplishing big things in the interest of the community as a whole. It is, therefore, with a good deal of confidence that I commend to you the programme of to-night, and ask for your careful consideration, in the hope that the Farmers' Club movement is one which justifies the most enthusiastic and the most aggressive encouragement in the future.

In view of the fact that the County of Waterloo was one of the first to take up this movement and the one in which it has been worked out to the greatest success, it is only proper that I should call on Mr. Frank Hart, our District Representative, in that county, who is largely responsible for the success which it has had.

WHAT HAS BEEN ACCOMPLISHED BY FARMERS' CLUBS IN WATERLOO COUNTY.

F. C. HART, DISTRICT REPRESENTATIVE FOR THE COUNTY OF WATERLOO, GALT.

It is a little difficult to say anything new on the subject of Farmers' Clubs. One great value that I have seen of the Farmers' Club in Waterloo County is that it is a local organization and managed and controlled by the men in the community. It is not a Government concern, and any success or failure is not laid at the door of the Government. The support of the club devolves on the local members and they take a greater interest in it on that account. I do not suppose there is any class in the land that the Government is so solicitous about as the farmers. For him tons of literature are printed and Colleges maintained and experts employed and the Government maintains branches covering every department of farm work.

For instance, the manufacturer of the cream separator has to hire his own experts and has to do his own experimenting. As soon as the separator gets to the farm we have an expert, supplied by the Government, to show us how to use that separator. Not only that, but the Government employs experts to show us through the whole gamut of getting butter and cheese from the soil, and a spirit of self-dependence is somewhat lacking. It appears to me that we are depending too much on the Government and not enough upon ourselves. The club offers a chance for a little more self-dependence, and it is working out that way in Waterloo. Our men are beginning to find out that they can do things without any help from the Government. I will not enlarge on this any further, because I believe we are to have some speakers on this work later in the evening.

Another important aspect of the club movement is that it gives the community an organization, which meets regularly, through which any ideas that are brought forward can be pushed to fruition. You will often hear farmers say: "We should have a plowing match, or we should have rural 'phones, or we should have rural mail delivery. We should have a short course in this locality, or poultry circles," but, without an organization in the community, nothing comes of it. When you have an organization, be it club or literary society, at which these ideas can be brought before the meeting, then something is done, and things have been accomplished along lines that I have mentioned and in many other ways. In all education in the interest of the farmer in the past, he has been taught to grow two blades of grass where only one grew before; two potatoes instead of one, two barrels of apples in place of one, and so on; but there has been practically nothing done to help him market his goods after he gets them, and the club is helping them to solve this important question. It is leading towards that question which you have heard discussed very much, co-operation.

Although the financial aspect and the prosperity of the community was taken into account, I think the real reason why I wished to see more clubs in Waterloo County was from the social standpoint. I do not think that in Ontario to-day there are many farmers starved from their farms, but I do think there are many boys and girls who have been literally starved socially into the towns and cities. We hear our grandfathers and grandmothers speak of the logging bee, and the barn rasing and the singing school and the literary society and the spelling match and the sugaring-off. All these things, part business and part sociability, have passed away; and the occasional barn dance that is held should not be the highest type of social activity in the community. The club meeting, once in two weeks, offers the highest type of social life in the community. It is just a little difficult for me to lay before you what I have seen as to the social effects of the club in the community. Here is what one farmer said: "Say, this club is a great thing. I knew John Gillespie had a couple of sons; but I have been meeting them in the club and I tell you they are fine boys. I had no idea that they were such smart fellows." That same farmer has met with fifty other families in the same way that he would not have met with but for the club. There has been aroused a neighbourliness that did not exist before. I drove into another farmer's place at the edge of the township, and he said· "Are you going to the club to-night?" "Yes, if I can," I replied. He said, "Well, we are going; we never miss the club meeting if we can possibly get there." It is difficult to give statistics as to the value of that kind of thing in a community. I wish you could come with me to some of these club meetings. At one meeting, held just outside the town of Galt, a lady spoke on "How to Improve the School," and a gentleman spoke on "How to Improve our Live Stock," and another on "How to Improve the Farmer's Business Methods," and another lady on "How to Improve our Homes and Home Surroundings." Men and women, young and old, meet in a farm home and have a real good time. I wish you could come to the Dumfries Banquet, held in the Town Hall, or the Ayr Club Banquet, or the Willmot Social. They have had such men as Dr. James and Dr. Creelman and Dr. Macdonald, the editor of the *Globe,* and Mr. Flavelle. All these things have a brightening effect on the community where they are taking place. We have reached the stage of a central organization in Waterloo County, we call it the Board of Agriculture. Nothing very radical has yet been done by this central organization, but we are beginning to do things, and we are looking forward to bigger things in the future. The moral effect of being able to accomplish things for ourselves has a result on the farmers of the county, and I think will work out to very important results. This rounding out of the social life in the open country is something that must be seen to be appreciated. Later on some of the men who have been working in these clubs are to speak, and they may be able to give you a better idea of the effect of the work on the community.

FARMERS' CLUBS OF GREY COUNTY.

HUGH DUFF, DISTRICT REPRESENTATIVE FOR THE COUNTY OF GREY, MARKDALE.

When Mr. Hart was speaking I was reminded of a meeting I attended last week of one of our new clubs. They had not had a meeting for quite a long time, and they had considerable business on hand, and kept discussing business until I began to worry. It was so late when I got to my hotel that I had to play the part of a common burglar and get in at the window.

Farmers' Clubs are getting interesting, and the movement will grow very rapidly. When I went to the County of Grey, a year ago last June, I found that there were seven active clubs in existence, thanks to the efforts of Mr. J. I. Graham, one of the secretaries of our Institutes. He certainly did a good deal for the clubs in Grey County. Four more clubs have been added to that number, so that we now have eleven very strong clubs.

My work at first was to try to find some way of getting the clubs to work together, some way of strengthening the organization so that there would be no danger of the movement not going ahead. It was an easy matter to start some movement because we had Mr. Hart's example to go by. We followed in his footsteps, and called a convention last January at which ten clubs sent two delegates each, and these delegates gave a report of what their clubs had accomplished, and told of their difficulties, successes, etc. We then had the election of officers, and the appointment of the executive, and a discussion on what could be accomplished by a County Board of Agriculture. We found that it was necessary to adopt a constitution, and again we had the benefit of Mr. Hart's lead. Then we discussed what we would do during the year. We have been able to accomplish a little, but not very much, owing to the fact that the organization had no funds. Next year we expect to have a little money to spend, because every club is giving the central organizations ten cents per member, and we have between 500 and 600 members. One of the things that the Board of Agriculture has accomplished that has been a great benefit to the county has been in connection with the labor problem. We got the names of the members of the club who required help, and sent word to the Immigration Department and secured quite a number of men. We were able to place a number who came over in parties and who had to be sent out to the country in a hurry. We simply got a telephone message from Toronto saying that there were so many to send out—six on one occasion—and asking us if we could place them. I happened to be secretary of the Board of Agriculture, and I had a list of the men who wanted help, and it was simply a question of telephoning to the secretaries of the clubs asking if these people could be placed and then letting the people in Toronto know that we could handle the men. I was in the Front Street office to-day, and met Mr. Clark there for the first time. He said, "You must have a pretty good way of placing men in that district, because you get rid of them in a hurry." It was all through this County Board of Agriculture giving us a means of keeping in touch with 500 or 600 men in the county.

Mr. Putnam sent us a little book on Farmers' Clubs and we considered it wise to follow the suggestions made therein. We made slight changes in the constitution to suit our district, and we now have a constitution that we think is suitable. One of the most satisfactory arrangements made by the board is that the responsibility of the work of certain clubs is placed upon the members of the executive. There are six members, including myself. Each member has several clubs to look after. They are responsible for the starting of these clubs in the fall if they have not been conducting meetings during the summer. These men are also made responsible for the starting of new clubs throughout the county. We do not make a practice of going out and urging men to form clubs; we believe in allowing the farmers to take time to consider the matter and talk it over and then let them ask for a club. These men who are on the executive will talk it up with a few individuals in the section, and the first thing we know they are asking for a club in that district. This fall there has been quite a demand for clubs, very largely because of the meeting we had last January. There are two things that we failed to accomplish and that we are very anxious to see carried out. We have the largest county in the Province. We have a wonderful general farming district and we want to encourage the breeding of stock. We want to get some money to encourage the amateur stock breeders at the Guelph show. We have part of the best fruit district in the world. Grey County is in the Georgian Bay district, and there is no district that will produce apples that will keep so well, or apples with such a good flavor as the apples from the County of Grey. We can produce a Northern Spy that will beat anything in the world. We wanted to show some of these apples this year, but we were not able to get the money to do so.

The outstanding feature of the club work so far undoubtedly has been the new life that it has put into the community. The membership of the clubs runs from 30 to 125. I want to speak of that club that has 125 members, because it is an unusual one. While it is one of the strongest, I would not say that it is doing the best work. It is located in a township that has been known as the worst, it is rough and hilly and somewhat stoney, and the members of the club are largely young people. The young man who was instrumental in having it organized, and who is the president, knew that the young people were fond of fun, and so at the first meeting he announced the programme for the next, and said that there would be dancing at the conclusion of the programme. They had a rousing address on a good agricultural subject, and then a sociable time. The club is catering to the demands of the people, and at the same time it is giving them something that is good. I do not know of any club where they have better discussions on agricultural subjects than that one. That is the only district, so far, where I have found variegated alfalfa. They know all about the common alfalfa and they are making good progress.

We are just beginning a work that I desire to mention; we are making a special effort to revise the prize list at the fairs throughout the county. We are interested in producing potatoes and other things that are going to bring greater profit to the farmer. In Grey County we grow just as many varieties of potatoes as they do in any other county and we are trying to get the fairs to give bigger prizes for such varieties as the Empire State, Davies Warrior, Rural New Yorker Number 2, and so on; and to pay bigger prizes for the variety of oats that is best suited to our locality and to carry that idea throughout the whole Prize List.

The Chairman: A gentleman was in my office the other day and was discussing the whole question of Farmers' Clubs, and he propounded what he thought was somewhat of a puzzle. He said: "We have Farmers' Clubs in our district which have been going for some years, and, although the membership is steadily increasing, the attendance is steadily decreasing. How do you account for it?" I said that I did not know how it could be accounted for, unless it was that they had co-operation in the neighborhood and in that particular club, and he confessed that

that was the explanation. I do not cite this as an argument in favor of a decreased attendance at the meetings, because I think after the able addresses of Mr. Hart and Mr. Duff you will all be convinced of the advantage of attending the meetings. The social and educational advantages are strong enough to weigh very mightily in the consideration of this question, and to prove a big factor in making your club a necessity in your community. At the same time, I would emphasize the desirability of carrying out some practical scheme of co-operation, and we now approach that part of our programme which will deal more specifically with this question of co-operation. Co-operation has been worked out in various ways, and it can certainly be worked out to success through the Farmers' Clubs.

We will first hear from Mr. Hare, who has made such a big success of co-operation by means of poultry circles in Ontario County.

ONTARIO COUNTY POULTRY CIRCLES.

J. H. Hare, District Representative, Whitby.

We must all acknowledge that the Farmers' Club is a splendid organization, yet I do not believe that any of us would take the stand that it is a perfect organization in its present state. If I were given authority to pass judgment on the modern Farmers' Club I would feel inclined to say that many of them are too much one-sided in the work which they undertake. A great many of them confine their energies to work of a social or educational nature. If our Farmers' Clubs had the supervision of some successful business enterprise, and if the members could derive some tangible money results, I am sure that the acquisition of membership would be an easy matter. Inactive members would become active and the social and educational side would be better received.

I do not think the Farmers' Club could take up a better line of work than poultry. This branch of agriculture is in need of encouragement. There is no branch that will yield better results. The majority of the farmers are not interested in poultry, and they are often accused of indifference. Just why the farmer should not be interested in his poultry is difficult to understand. It certainly cannot be caused by the returns that he gets. We have abundant evidence to establish the fact that considering capital and labor, the returns from poultry compare very favorably with other lines of live stock.

We must conclude, therefore, that the farmers disregard for poultry is caused by a wrong idea with regard to the industry. There is room for a lot of missionary work in regard to poultry on the farm. The farmer should be aroused and made to see that there is a distinct place on his farm for poultry, and that it is one of the best revenue-producing branches of his business. From the experience I have had in Ontario County, I do not think there is a better way of getting the farmers to realize the importance of the poultry business than by organizing Poultry Circles. The fundamental principle is that of co-operation. The fruit industry has been wonderfully improved by co-operation. I think greater things can be done for the poultry industry than have been done for fruit. The poultry industry is in a worse state of neglect than the fruit industry ever was. The eggs are bought by country merchants, hucksters, and egg dealers, who pay so much per dozen without the least regard to the question of size or quality. This is unfair to the farmers who are supplying eggs of the finest quality. They suffer because of the low price that is paid for the average egg. The reduction in price is considerable. We know that there is a shrinkage in the egg trade of from 15 to 25 per cent. In the United States report it is said that there is a loss of 17 per cent. by bad eggs. The Dominion authorities recently made an investigation, and they found that the produce merchants of Canada were of the opinion that that estimate was not too high, so you see this shrinkage must be accounted for in some way. The commission merchants know what shrinkage to count on at certain seasons of the year, and they pay a price sufficiently low to cover that shrinkage, therefore the farmer who is supplying the trade with good eggs has to suffer because of the low price he has to take. Such a system should be strongly condemned. The egg trade needs a selling principle based upon quality. That is the principle we have in the egg circle. The farmers are paid for their eggs according to their real value, and the organization sells the product at the highest price that can be obtained on the market. The organization establishes a reputation for the highest quality of eggs.

The indifference of the farmer makes it difficult to establish an egg circle; they seem to think that because their grandmothers traded eggs at the store for sugar and tea that they must do the same. In almost any community there are a sufficient number of progressive farmers who will readily see the advantage of co-operation and the necessity of establishing something like an egg circle. You will find enough men of this class to get the organization started. The egg circle must necessarily start with a few and time must be taken to prove to the others that their objections are without foundation. As soon as the circle is started it has enemies of all descriptions—hucksters, storekeepers start to squelch it—but if the farmers remain loyal there is no trouble in keeping the circle in good working order. The first thing to do is to convert the farmers to the benefits of co-operation. When the right time arrives a meeting should be called, and have at the meeting a man who is strong on co-operation. At the organization meeting six or seven directors should be appointed, and after the meeting is over the directors should be called together and the election of officers should take place and a manager should be arranged for and employed. He should be paid on the commission basis. The secretary should arrange for the issuing of instruction sheets, egg stands and other equipment that would be required. Before a farmer is admitted to an egg circle he should agree to live up to its constitution and by-laws. It is our experience that if those in charge of the egg circle formulate a very arbitrary set of rules and stipulate that the violation of these rules will result in expulsion, that the results will be disastrous. Strict observance of the rules should be kept before the minds of the farmers, but it must be kept in mind that the farmer does not look upon his poultry as a business enterprise. The egg gatherer is usually the manager of the circle; he makes it a point to gather the eggs on a certain day of each week and prepare them for shipment. He reserves his commission, which is usually from one to three cents. The success of the circle depends a great deal on the integrity and honesty of the manager. Unless an association can get a good manager it had better give up the idea altogether. The egg circle movement has been in progress in our county for some two years. It started with one organization in the north part of the county, and we had a good deal of difficulty in getting it started; finally we got it going and at the present time we have seven organizations. The second one we started proved an entire failure. Our organizations vary in size from 37 to 195 members.

The shipment of these seven egg circles during the spring and summer months of this year have represented in money a business of $20,686. The advance in price due to this organization has varied from one to three cents in the summer time to from four to twelve cents, and as high as fifteen cents in the fall and winter months. The results from an educational standpoint have been satisfactory, and there has been a revival of interest in the poultry trade. Before leaving the office, I noticed we had applications for some fifty cockerels, and they were to be of the W. R. Graham strain, as one man put it. Good attendance at poultry meetings is now the rule. Inquiries for instruction as to methods of breeding and feeding are increasing in number, and in many instances plans are being made to construct new houses, and to enlarge the size of the flock, and to breed pure bred poultry, and to give their poultry that attention that they so well deserve.

Two Important Points.

The Chairman: Mr. Hare's fascinating story as to the success of the egg circle movement in Ontario County, to my mind, brings out in striking relief two great underlying fundamental principles in connection with our agricultural work. One is the supreme importance of producing quality in farm products; and, second, the great desirability for securing for the producer as large a share as possible of the price which is paid by the consumer. These two questions, I believe, underlie the great problem of agriculture at the present time, and we are indebted to Mr. Hare for presenting to us the story of a movement which has accomplished so much in one county, and a movement, which, if extended, can accomplish as much in other counties. In looking over some statistics the other day, I was very much struck to notice that during the last fiscal year, Canada imported over seven million dozen eggs. It may surprise you to know that Canada is not supporting itself in this line of farm produce.

We are fortunate in having with us to-night Professor W. R. Graham, of Guelph, one of the most eminent authorities on the subject of poultry on the continent. During the past summer Mr. Graham has had an opportunity of visiting Ireland and Denmark and studying, at first hand, the co-operative movement which has made both these countries famous all over the world. I trust he will tell us to-night something of their success, and mayhap something of the points in which they fail, for, perhaps at this distance, we are too likely to hear of their success and not be told that they have their failures as well as we.

CO-OPERATIVE POULTRY WORK.

Professor R. W. Graham, O.A.C., Guelph.

In looking at this question of co-operation I wish you would bear in mind at the commencement, that the essential point in marketing any kind of farm produce is *uniformity*. Let me illustrate that point. I visited a number of grocery stores in Edinburgh, Glasgow, and London, and I found that they were nearly all in favor of Danish eggs, and they liked Danish butter and bacon. I asked several of them why they preferred Danish eggs and butter, and the reply was in almost every case that they could put out tub after tub of Danish butter and every tub would taste alike, and that the eggs were uniform in size and quality. They said to me: "Don't forget that the consumers in this country are not farmers, never have been, and it is not likely that they ever will be. They haven't any idea that the flavor of the eggs may be affected by the food the hens eat. What they want is a uniform quality 365 days in the year." The same thing is desirable in this country. Not more than two weeks ago I attended a convention at Chicago of the National Butter, Poultry, and Egg Association. It is composed practically of packers from the Atlantic to the Pacific. There were over 900 of them there. I met one dealer in Chicago who was making a fortune in selling to large hotels, high-class restaurants and dining-cars a uniform product. He will sell you a box of potatoes in which every potato in the box will weigh exactly three-quarters of a pound. These potatoes are wrapped in paper the same as apples. He gets from $1.50 to $1.75 per box for the potatoes. The idea in having them the same size is that if a dozen people went into one of these hotels that purchase from this dealer, they would all get a potato of the same size, and there would be no possibility of the small man saying to the large man, "I got the biggest potato?" The same thing with regard to every other vegetable. And if you order a half chicken it will be the same size as your neighbors on the other side of the table. Everything this man handled was uniform in quality, and the hotel people said they "Could depend upon this man giving them something that was uniform in quality, and as long as he does that we are not bothering about the price."

How are you going to get this uniform quality? You certainly cannot get it by individual effort. We have been putting forth a great deal of effort along educational lines for the last twenty-five years, and we have been trying to make two blades of grass grow where one grew before, and sometime or other you have got to pay attention to the marketing of this produce. In Denmark they have district representatives, the same as we have, only they have a more limited field to cover. They will have one man who is an expert at horticulture; another man who is an expert at general agricultural work; another who will look after the dairy end, and another after the poultry. Then they have breeding stations for live stock, or they select a farmer in a certain locality and supply him with a pure-bred herd, and the people in the vicinity can go there and get the stock. For instance, if a farmer wants eggs for hatching, he would go to this station. He must give a dozen of his own eggs and 25 cents for a dozen eggs from the station. The farmers find it more profitable to buy their eggs for hatching from the breeding station. When you have all these educational schemes and the breeding station scheme, then you must have co-operation or a marketing scheme, because the three go together. I am doubtful whether you can make a pronounced success of any one of the three alone. Anyone who goes through the South of Ireland will be very much impressed with what co-operation has done for Ireland. Anybody who travels through Denmark cannot help but be impressed with the fact that these people owe a great deal to co-operation. Of course when you get into Denmark almost everything is done on the co-operative plan.

The difficulties they encounter in Ireland, I presume, are very much the same as we encounter here. Eggs, heretofore, were sold in Ireland to hucksters and grocery storekeepers, and that is similar to the way they are sold in Ontario. When the co-operative movement first started, the hucksters and the other people got together and said, "We will put this proposition out of business," and they certainly did the best they knew how, and in some cases they succeeded. There are individual cases, one in particular, in which a lady told me that a certain dealer offered her four cents a dozen above the highest price the Co-operative Association could pay for her eggs, and he would pay that price for two years. He simply said to her, "I will give you four cents above the highest price they will pay, and in order to make the thing absolutely certain, if you will name how many dozen eggs you got during the last two years, I will give you a cheque for four cents a dozen above their price right now." That was a pretty stiff proposition. It would make most people give in when they got a proposition like that. One of the greatest difficulties was that in many parts of the country the people had been accustomed to trading eggs for groceries, tea and sugar, and they did not want to sell their eggs in any other way, and the result was that the Co-operative Association was forced to carry in their wagons whatever the farmers wanted for their eggs, and instead of paying cash for their eggs, they gave them groceries or whatever they wanted.

I doubt whether you will get any keener competition in this country than they have had over there. One lady with whom I spoke told me she did not sell her eggs to the Springfield Co-operative Society, and I said, "I understand your husband is a director of the society?" and she said, "yes." I said, "Why don't you sell your eggs there?" She replied, "I can drive my eggs to such-and-such a town, a distance of eight miles away, and I get two pence more over there. She had four dozen eggs a week, and she drove these eggs eight miles for four cents per dozen. I asked her if she thought that paid. But it must be borne in mind that her husband had to supply the horse and rig. The societies are handled very much as Mr. Hare has outlined.

Our country seems to have its difficulties. The difficulty in Denmark is the high price of feed. The labor problem does not bother them there. If any of you wish to see a race of people who practically all look alike, and who all look physically fit, it would be worth your while to go across the North Sea and see the Danish people. The co-operative movement in Denmark is easier to handle than it would be in almost any other country, because there are only two ports, practically, out of Denmark, and the Government can place an official at each port and nothing can go by them that is not inspected. If the eggs are not up to standard they cannot be sent out. This makes it comparatively easy for them to ship a uniform product. In order to make co-operation a success, you must affect the farmer's pocketbook. You cannot get many people to work on sentiment. The value of a dollar is much greater in Denmark than it is here, and you can purchase a lot more for the money there than you can here. You can buy a good cigar in Denmark for one cent, which would be just as good as what you would have to pay ten cents for here, and other things are about in proportion. You can hire a livery at an amount which would lead you to actually wonder how the man fed the horse on American oats and drove you around at the price he charges. Nearly all the grain they feed is from this country. I would like to say that nothing goes to waste in Denmark. You will read in your book how the same roof covers cows and hens and horses and the people, and it is absolutely true. The horses and cattle are in one end of the house and the people in the other, and then comes the hens and the pigs; there may be a brick wall between them. You never see any flies about a place as you will in this country. They have to take care of the manure and everything else. The land is very hungry and the manure has got to be taken care of. Money is so hard to get that they appreciate the value of manure. If it were possible for you to move right from here to that country and back again, that would be one of the things that would impress you most, their extreme cleanliness, and they are made to be so by the value of the manure.

Can the producer sell to the consumer? That is a question that comes up in connection with co-operation and, just at the present time, it is a very live question. Go to some of your friends in Toronto and find out what they are paying a bag for potatoes and apples and then go back home, and you find your corner grocer is paying so much less, and you say, "I would like to get the price they are getting in Toronto." I do not wish to hold out any hopes that that is possible except in a very limited way for this reason: Somebody somewhere must be able to supply the trade in any quantity at short notice. For instance, if you were to undertake to supply a first-class restaurant or hotel in this city, or even a small store, there is no possibility of their knowing whether their customers are going to want a half dozen eggs apiece to-day or two or three dozen, and there is no possibility of the hotel keeper knowing whether he will require ten or twenty dozen eggs to-day. He might find out after breakfast is over that the ten dozen are gone, and he has got to have some more, and, therefore, there must be a central supply house that will get these articles to him in time; they virtually have to be on tap. In the next place, unless your business manager is an exceptionally keen man, he will get more or less bad collections.

So far as I have been able to observe, there is only one place in which they are trying to sell direct from the producer to the consumer, and it is being tried at the present time in Edinburgh by the Northern Co-operative Society, and I am perfectly satisfied that it is going to be a failure. They have an establishment in Leith which is a little way from Edinburgh. They have a store there but no storage facilities. It is simply what might be called a commission house, and this is what actually happened: During the flush of the season last spring, they sent in large quantities of eggs, and the manager of the store hustled around and disposed of them and everything was going lovely for about a month's time. Then somebody in London took a notion that it would be a good proposition to send the fleet up to the end of the Orkney Islands or the north of Scotland, and the British fleet went up that way. Of course, the sailors wanted eggs, and they went over to the Co-operative Society, and said, "How much do you get for your eggs in Edinburgh?" and they said, "So much." They said, "Well, we will pay it to you right here," and they did, and the poor fellow down in Edinburgh was short so many hundred dozens of eggs for about three weeks. Then somebody in London called the fleet back again, and then they sent the eggs to Edinburgh, and the manager went to his customers, and said, "I am sorry that I have not been able to supply you with eggs for the last three weeks, but I have a fresh supply in," and the storekeeper said, "No, you cannot sell me any more eggs. You sold me eggs when they were cheap, and now they are up, I have to go back to my usual source. But I cannot get them at contract prices, and I am paying a halfpenny a dozen more than I used to. You will have to go and sell them to somebody else unless you can guarantee to give me so many dozen of eggs per week." If you undertake that work in this country, it will be necessary to have a storehouse to take care of the surplus stock.

There is no hope of your getting higher prices during March, April or May; but if you could arrange to store them, you might make some money. That, however, would be a speculation. Nearly everybody's hens are laying in the spring, and there are so many hens in the country, that they are laying more than the people can consume. The Danish people handle the proposition in this way: They put these eggs into pickle. I asked a Danish official, "What about the stamp you have on the eggs?" Now the stamped egg means a different thing in different parts of the country. In Denmark the egg is stamped with the number of the circle and a number which corresponds to the man's name, and they are sent to the central station and candled. If they find an egg marked "22" that is bad, they go to their records and see who No. 22 is, and they put the egg out. After a while one of the Government officials comes along and examines that egg, and if No. 22 has been in the habit of sending too many bad eggs, the chances are it will cost him about $2.50. If this is the first offence, he may be warned; they do not put the screws to them too tight, but if they constantly send bad eggs, then they get after them.

In Edinburgh I saw in a store window big placards: "Danish Eggs. Fresh To-day." The term "fresh eggs" is a misnomer. They mean the eggs are fresh off the boat and not what you would call new laid eggs, but they were fresh eggs. You may find in the city of Toronto fresh eggs that are fresh out of cold storage or fresh out of pickle, but when you use the term new laid eggs, then they cannot get around that.

Stamped eggs in Great Britain mean foreign eggs. The Irish won't stamp their eggs. They are producing good eggs, but they are not uniform, and they do not bring as high a price as Danish eggs. There is no fear of our exporting eggs to Great Britain, because they are cheaper there than they are here. At the time I was in Ireland, I could have bought Irish eggs and laid them down in Ontario, and I would have broken even on the proposition. I do not know of any country in the world where eggs are more expensive than in this country, and if other countries are making a little out of the egg business, we ought to be doing better.

In Denmark, Ireland, and Scotland they pay for the eggs by weight as well as quality. That is to say, there is a premium paid on large eggs, and a discount on small eggs, and there is a heavy discount on dirty eggs, and there is practically a fine on eggs that have started to hatch, or rotten eggs. They do not have the same difficulty with eggs starting to hatch there that we have, for the reason that nature has not made the country warm enough to be a natural incubator. And in Ontario we do not have as much trouble as they have in the countries to the south, but we have one little corner in this Province that bothers us a lot. We have a corner in this Province where they grow seed corn, and ordinarily where you can grow seed corn, the temperature gets hot. When you begin to buy eggs from down in that vicinity in warm weather look out, because you are going to get more or less of the early stages of broilers inside the shell.

I suppose it costs this Province in the neighborhood of $50,000 every year to listen to the roosters crow during June, July and August. Many people blame the farmer for the unsatisfactory state of the egg market and undoubtedly he is somewhat to blame. He seems to forget that eggs are a perishable product the same as milk. Because an egg has a shell, it is no reason why bacteria organisms will not pass through that shell right into the egg. You should bear in mind that the white of an egg is one of the things used in a bacteriological laboratory for growing certain organisms. The chick that lives inside the egg must breathe through the pores in the shell, and I can produce any quantity of evidence to show that the holes in the shell are large enough for the germs to pass back and forth. Farmers are to blame for not giving their birds something to eat. You cannot expect to make a good egg either in flavor or quality from grasshoppers, grass, and water, and those who do not feed their hens during the summer time, cannot expect to have good eggs, uniform in flavor. Almost any man that you speak to about it will tell you that he likes the flavor of eggs in the winter time better than he does in the summer time and he thinks it is due to the fact that the eggs are worth a little more money in the winter time, but if you take a winter egg and put it in storage and then bring it out in the summer time, you will still like that winter egg.

The Scotch Society had great trouble in handling the trade because they had not a storehouse. They would build a storehouse if they could get the money, but when you begin to ask people who are not worth over $500 to put up one or two dollars apiece to build a cold storage to hold eggs, they won't go into it. The Danish Co-operative Society sell to the highest market, and consequently they sell to the English wholesaler. In England there are numerous co-operative retail stores, and they buy from the English wholesaler because he can sell cheaper than the Danish Co-operative Society can, and he practically pays more for the eggs than the Danish Co-operative Society does. If you figure this out, you cannot come to anything but one conclusion, and that is that the ordinary keen business man can do business at a less overhead charge than the majority of co-operative societies can. That is to say, where we all join together and undertake to sell anything, something is apt to happen with the manager, and his overhead charges are greater than the overhead charges of the business man, and that is why the business man can compete with him on the market. On the other hand, co-operation makes the business man keep his place.

WHAT SOME CLUBS HAVE DONE.

The Chairman: Before concluding this meeting to-night, it has been suggested that it would be well to have a few brief remarks from those who have been practically interested and closely connected with the work of the Farmers' Clubs throughout the Province. We will call on a number of the leading members of the Clubs in different counties, and ask them for a few words by way of suggestion and by way of presenting an idea of what has been accomplished and what may be accomplished. First of all, we will hear from

P. J. Manson, Waterloo County.

Waterloo was one of the first counties that had a representative from the Government, and I suppose that is the reason the Chairman has called on a representative from Waterloo County first.

In the year 1907 there drove into my place one day, a rather young looking chap, and I wondered what he was after. He told me he was representing the Government, and then I wondered what I had been doing. Then he said, "I am coming out to try to help the farmers," and I said, "We will only be too glad of the help." That young gentleman is on the platform to-night (Mr. Hart). He has given us much assistance, and we have had every assistance from the Government that we could possibly expect.

Our club at Ayr was probably the first organized in Waterloo County. In 1907, Mr. Hart asked us to try to call a meeting and he sent us small bills and they were handed around. It happened to be a bad night and we only had seven who came to the meeting, five farmers and two business men, and that rather put a damper on our prospects, but we stuck to it and in 1908, we organized with a membership of twenty. We hold our meetings in the village of Ayr. The

Council readily gave us the use of the Council Chamber and heat and lighting free. We have meetings once a month. We have a committee of six men and a president, vice-president, secretary and treasurer. We try to induce the vice-president to take the presidency the following year. We have had some difficulty in inducing the younger members to take hold of the club work, although we have young men in the county who are capable of doing it. We generally have three men to take up the subjects for the evening and we give them ten minutes, and then the members of the club are allowed to ask questions. A good way to get the young men to take part is to ask them some questions in relation to the subjects that have been discussed.

We have had two short courses. In 1909 we had a short course for three days, and the Government sent us up the very best men they could procure such as Professor C. A. Zavitz and Professor Geo. E. Day, and this year we had Mr. Bailey, who spoke this afternoon, and he left a good impression among us. He took hold of the young fellows, and had no trouble in getting them to go over the stock with him. At the morning meetings, we have from one hundred to one hundred and fifty, and in the afternoon, we have had as many as five and six hundred people. You may ask, have we done anything that will be of any benefit to the community at large? The first thing we took up was beef rings. We formed three different beef rings in the locality. We had no telephone system and we started in to get one, and it has been a splendid thing for the farmers in every way. We had a great deal of difficulty in inducing the farmers to put any money into it, but we got some to put in as much as $300, and they are receiving 5 per cent. on their money and have their 'phones free. We laid aside 7 per cent. last year. A good deal has been said with regard to the social side of the question, and I think the club is having a good effect in that way. Last year we held a banquet, and it was one of the best banquets I have ever attended, and I have attended some pretty large ones in the city of Toronto.

We formerly had great difficulty with the C. P. R. in unloading our freight. When we were shipping turnips, they had not a siding and they would bring in the train and kick out a car and it would stand around three or four hours. We got our secretary to write to headquarters and ask that something should be done, but we received no answer, and then we got up a petition and every farmer in the neighborhood signed it, and we wrote at the bottom, "If you do not take notice of this, we will try to bring it before the Railway Commission." A week after that we got a notice from the C. P. R. that their officials were coming up and asked us to send a delegate to meet them. The result was that to-day we have a splendid siding which is a good thing for us.

Another thing that we accomplished was the securing of a continuation school in our village. Before we had to send our children to Galt. The Farmers' Club took up the matter and to-day we have a very progressive continuation school. We have received a good deal of assistance from the Women's Institutes who co-operate with us.

J. W. PERDUE, GREY COUNTY.

My experience of club work is very limited. A year ago, I knew scarcely anything about Farmers' Clubs. Last January, we held a short course in stock judging in the village of Chatsworth, and the last night of the course we had a banquet. This seemed to pave the way for organizing a Farmers' Club; it seemed to bring the farmers together, and such an interest was created in agricultural subjects by this stock judging course that a great many of the farmers were willing to join a club. We have not yet attempted anything very elaborate. We organized the latter part of January, and we have a membership of sixty-one.

The first question that we discussed was continuation schools, and it took so well in the community, that in a very short time, we held meetings throughout the different school sections, and when they opened up in September we had a first-class continuation school equipped and running with an attendance of forty-one. This would not have been accomplished if it had not been for the Farmers' Club.

I think it was the Chairman in his opening remarks who stated that the clubs gave the people of any community, an opportunity of solving local problems. We have our own local problems to solve, and as individuals we find it a very slow process; but when we have an organization to work through, the work is comparatively easy and we can go ahead and accomplish something. We have discussed many subjects of an agricultural nature, but it is not necessary for me to enumerate them here. These discussions are very profitable and bring out a great many ideas from the members.

Another problem that we have considered is that of hired labor, and also underdraining, and we hope to accomplish something in this regard before very long. There are a number of old orchards in the neighborhood that a few years ago were yielding good returns, but labor became scarce, and the fruit market dropped, and the orchards were neglected and left to shift for themselves. We found out that like everything else, the orchards must be looked after. We had Mr. Kydd from the Fruit Division lecture to us last spring on the care of the orchard. The Town Hall was crowded, and the people took a great interest in the address; but I cannot say that they all followed up the advice they received. However, an interest has been stirred up, and I expect that we will have good results from that address. We also had a demonstration on the care of bees.

We have taken up the question of rural mail delivery, and I expect that before spring it will be renewed again and that we will have results.

In conclusion, I would like to say that I believe we have the best Province in the Dominion of Canada, although we are continually looking to the Western Provinces or some other part of the country. We can scarcely take up a paper but we find full page advertisements of some particular district in the West. They tell us in the most glowing terms of the possibilities of that particular locality, and we are standing with our mouths open watching the other fellow, and the first thing we know he has outdistanced us in the race. I think if we are going to hold our own with the other parts of the Dominion we will have to get out and work. Our friends come back from the West and say, "You are a slow lot in Ontario. You had a start on us by a hundred years, and now you are a hundred years behind us." We can keep up to these fellows every time, but we must work not only with our hands but with our heads. At the Corn Growers' Association meeting last winter one of the speakers said that no man had ever yet been able to earn a dollar from his neck down. If we are to learn from our hands and feet alone, our knowledge will be small. I know of no movement which will do more for the farmers of Ontario than the Farmers' Clubs and I trust they will be multiplied in this Province during the coming year.

F. A. EMBERSON, MUSKOKA.

In Muskoka, in the north country, our conditions are very dissimilar to the conditions in older Ontario. When I was down at the last convention, some of the gentlemen wanted to know what we grew up in Muskoka. One said, "I was under the impression that all you grew in Muskoka was balsam and evergreen trees, and woodpeckers." I agree with him that we do grow some very nice balsam trees and that we have plenty of woodpeckers. The trouble is that some of our woodpeckers are not very skilful and do not strike twice in the same place. In order to be a successful woodpecker, you have to strike twice in the same place or you will spend very much labor in vain. In going along the other day, I saw an old stump that was very much decayed, but the axe marks were still on that stump, and I said to one of my neighbors, "that tree must have been cut down by so-and-so; it looks like his chopping." He said, "That cannot be, because that stump looks to be forty years old." I said, "It looks like his chopping, because you see he did not strike in the same place twice."

We have organized eight Farmers' Clubs in Muskoka. I think the prospects are very bright for our clubs. We have not gone into many different subjects as yet, but we have been able to do some good and I think we will be able to do a great deal more as time goes on. We have not the same opportunities there that you have here, but we are going to do our best and I feel confident that the club movement is going to be a great benefit to the farmers in our section of the Province.

THE CHAIRMAN: The time has arrived for bringing this meeting to a close. I am sure you will all agree that we have had a most profitable discussion on a most important subject. The brief addresses to which we have just now listened have clinched the statements that we have had from the other speakers during the evening's programme. They have shown that the clubs have possessed the facilities and ability to get down to hard facts and to deal with problems that needed to be dealt with in the different counties. These experiences could be multiplied many times over, but the lateness of the hour precludes that at this meeting. Perhaps another opportunity will present itself; but in any event, I think we have had enough to convince us of the usefulness of Farmers' Clubs and the desirability of encouraging their organization.

THE WORK OF FARMERS' CLUBS.

GEO. A. PUTNAM took the chair at the morning session on November 13th, and said:

I will call upon a few who have been prominent in club work, and am only sorry that I cannot call on every member who had been interested enough to attend this meeting. I would be glad to hear from Mr. A. R. G. Smith, New Hamburg, Waterloo County. I do not want to give undue prominence to the County of Waterloo, but they have been eminently successful there and have introduced a new system, and I think it well that we should hear from them. We have asked the local clubs in that county to elect men on the Board of Directors for Farmers' Institutes for the County. A few sections have not established clubs and we have asked interested parties to call a meeting and to name the representative on the Institute Board of Directors. That system makes the club the basis for the

District Institute. In your club work you will discuss many subjects of interest during the year, and as a natural result the club members should be in the very best position to let your District Executive know what you want taken up at your institute meeting. We are working out a system in Waterloo whereby meetings in that section will be held, not in one series with the same sort of work taken up at all points, but in several series;—Three or four special Dairy meetings, three or four Seed meetings, one or two Fruit meetings, two or three meetings in the interest of beef raising, and meetings in the interest of horse raising, and several short courses in stock judging. We believe that the farmers of Waterloo County are going to be better served through this new system. I think it is about time that the Department of Agriculture gave assistance to the various localities in the light of the efforts they make on their own behalf. You know that we have sent delegates for the most part wherever they have been asked for, and that the work has been done on more or less of a wholesale scale. We believe we should study a little more closely the needs and wants of the various localities, and the possibilities of the different sections and frame our work in accordance with this and the desires of the farmers.

A. R. G. Smith, Waterloo County.

I have the honor to represent a splendid little Farmers' Club of Waterloo County. I am not able to give a full report of its work since it started. A full report of its proceedings is published in the report of the Minister of Agriculture for last year. I would like to pay a tribute of respect to Mr. Hart for the excellent way he has organized Farmers' Clubs in Waterloo County. I would also like to pay a tribute to the ladies of our County for the splendid assistance they have given us. We recognize that the ladies are our equals and in many respects our superiors. At times they have filled out the whole of our programme and they have assisted in different ways to make our club a success. We do not confine our work to agricultural subjects. We find that there is a tendency on the part of the young people to leave the country. I happen to be a municipal officer. In going to the homes of the people near Berlin, I have asked the same question year after year, "Where is your son who was here last year"? and the answer invariably is, "Well, he has gone to Berlin, he liked the town better than the country." One of the problems that confronts the farmer to-day is to establish a counter attraction, and we have got to do it if we are going to keep the young people on the farm. The schoolhouse should be a place of meeting for the people. There seems to be an unwritten law on the part of some School Trustees that they will not allow the schoolhouse to be used for anything else but day school. The School Act says distinctly that the schoolhouse may be used for any educational purpose. There should be no trouble in securing the school house for Farmers' Clubs.

One of our young men took up the study of the Seed Control Act. During the early spring the Government wanted a seed inspector, and we were asked if there was anybody available. We recommended this young gentlemen, and I am pleased to say that he has made good, and has been asked to carry on the work next year. We also took up the question of rural mail delivery. We appointed a committee to draw out a route, and we took it to our member and asked him to carry it on, with the result that Inspectors have been sent into the County and the whole of South Waterloo will be covered with rural mail routes. We have also taken up the question of school gardens, not particularly in vegetables, but in flowers.

Our people represent four or five different religious beliefs, and we find that through the Farmers' Clubs, these people come together and get acquainted. We have a lot of German people in the county. It takes sometime to introduce yourself to them, but they are one of the finest types of citizens that you can find anywhere. Our Club has taken up the matter of co-operative buying to a liberal extent, and we bought a carload of corn through our local dealer. Some of the younger men haven't the ready cash, and the local dealer will take their notes. We have social gatherings, and we have had a splendid exhibit of pioneer implements. One of the things the young people are apt to forget are the people who came to this country in the early days, and in some parts of the country these old pioneers are lying under the sod and very little attention is paid to their graves. We have taken up the library question, and introduced a library into our public school. We also have an orchestra; the school board bought an organ, and we have music at our meetings. We have left the Stock Judging meetings in the hands of our young people, two boys, seventeen years of age had charge of them and they were conducted very successfully. We take the position that if you pay attention to the children the older people will come. We want to develop in this country of ours the highest possible type of citizenship.

MR. BOWES, GREY COUNTY.

It is something new for me to be present at a meeting of this kind and I am very pleased to be here. Our Club is away up on the Georgian Bay, about ten miles from Meaford. We have one of the finest fruit going sections in the Dominion. Our whole aim has been to try to keep the young people attached to the farm. We have not dealt with agricultural subjects alone. We have tried to get the community spirit and we try to get all the people together. One man, that very few people knew about, told us at one of our meetings what he had been doing along the line of seed grain. We had a debate on the School Act, and it had a very good result. I do not believe that one-third of our population are familiar with the School Act. We are now getting our seed corn from Essex County, and we are having no trouble with bad seed. We go to our dealer in the town and say we want so much Oil Cake or Clover seed, and we get it much cheaper by buying in quantities. A friend wrote me a short time ago and said it was hard to get good farm produce, and that he would pay Toronto prices at our station. Yesterday another man said to me, "If you will get me one hundred bags of potatoes, uniform in size, I will give you Toronto prices for them laid down at Meaford, and I will pay you for your trouble." There are too many middle-men in the marketing of farm produce, and the sooner we get nearer to the consumer the better. We made a special effort to get a better mail service. Our mail man only went around three times a week and in stormy weather he did not like to go out at all. We made this man do his duty. We now have rural mail delivery. We have formed the Grey County Board of Agriculture, and it has been a great help to us in our work. Some of the speakers last night spoke of the trouble they had in getting the young men interested in the work. We are getting the school children, twelve to fifteen years of age, to prepare essays and play on musical instruments at our concerts, and we are getting the people out to our meetings in large numbers. If you get a parent out once, he usually wants to come again, and the second time he will bring his membership fee along and join.

C. A. Young, St. Joseph Island, Algoma.

We all seem to agree with everything that has been said. Each speaker said his county grew the best apples or his county was the best for something or other. I wish to say that we grow the best apples in the Province.

I think the spirit of friendly rivalry is a very good thing in Farmers' Clubs. I am very proud of Waterloo County, because I think it is doing the best work in connection with Farmers' Clubs. I hope to be able to come to this convention at some future time and say that St. Joseph's Island is the best organized and has the best Farmers' Clubs in the Province. We are pioneers. I can remember when we went from Wellington County to St. Joseph's Island and cut out a little hole in the bush and built a log house. And through the efforts of Mr. Putnam and others like him, we have succeeded in making St. Joseph's Island a pleasant place to live in. We have difficulties up there that you haven't here, we are sparsely settled. In February the weather went down to about 35 below zero and we had between two and three feet of snow and storms galore, and yet members of the club would go fifteen miles every night to attend meetings. We live one here, and another five miles away. Our Club has a membership of about twenty. In order to get the young people interested we organized a branch to our club and we took in the girls and boys as members, and the night that we organized there was a membership from Richard's Landing of about sixty or sixty-five and it increased to eighty. They have music and debates and have a real good time. They have an intermission at each meeting in order that they may become acquainted with each other. Our District Representative told me before he left me as I was coming away that I would be asked to hand in a report, and I have written out a short one which I will read:

In submitting my report of the Farmers' Institutes for the District of Algoma and St. Joseph Island, I might mention first, the general satisfaction that is reported from every part of the district, from the results of the summer series of meetings, which, generally speaking, have been well attended, and also the very great satisfaction reported from every quarter regarding the ability of the speakers sent to us by the Department. The Convention of Women's and Farmers' Institutes and Farmers' Clubs for this District, was held at Richard's Landing.

It is very gratifying to note the increased interest that is shown year by year in this Convention. The attendance also is increasing rapidly, almost every institute and club in the District being represented this year.

We desire in this report, to express to the Department the great appreciation we feel for the instruction and advice received from the delegates who were sent to this convention, and hope that the Department will recognize the good work that is being done, and the interest that is being taken, and continue the good work. I might mention that an outstanding feature noticed at the convention, was the desire expressed by the farmers from all sections, for more co-operation in different branches of agriculture. Education along this line might be helpful. I am unable to report upon any particular line of work carried on by the Farmers' Institute, owing to the fact that in nearly all cases the same work is being carried on by the Clubs. While the benefits derived from the Farmers' Institutes and the work carried on by them are rather hard to define, still they are very necessary, and through them the farmers of Ontario are continually striving to attain a higher standard.

In reporting the Farmers' Clubs of this District, it is impossible for me to take up each Club separately, and give a detailed report of the good work they are doing. Still to get an adequate idea of what is being done, it will be necessary to go into detail to a certain extent. Consequently, I will take up two clubs, and I might say that the work they are doing is being done by every club in the District, and in a number of cases to a much greater extent. The following is a brief report from Livingstone Creek, A. S. Hopkins, Secretary:

> "Two years ago, our Club bought over one thousand dollars' worth of clover and timothy seed, saving over four hundred dollars to the farmers of this section. Last year, it being so dear, we only bought five hundred dollars' worth, and did not make so much per bushel. As our merchants saw we were up to them, they lowered their prices. Last year, we got a quantity of flour some forty cents per hundred weight lower than we could do here.
>
> "We had very good meetings, discussing topics of interest to all, with the result that some of us are trying alfalfa and corn and more roots, and one can see a desire for better stock, and a better system of feeding. Our next move, I expect, will be underdraining; the present season has shown us the necessity of this as never before. We expect to hold a meeting soon, with the object of securing a dairy sire from the Department of Agriculture."

In reporting the work done in our own Club, Richard's Landing, I might say our membership is about twenty. Three years ago we decided to get in clover seed, only members receiving the benefits of the cheaper and better seed, consequently our membership was nearly doubled. Since that time our merchants have been more reasonable and there is no necessity for the Club doing this work. Also the membership has decreased. The Club has brought into this section a pure-bred Ayrshire sire, three pure-bred Shropshire rams, and are now making application to the Department of Agriculture for Yorkshire swine. Last winter our District Representative, in conjunction with our Club, put on a series of night meetings, covering a period of six weeks. Mr. A. S. Smith, District Representative, prepared and distributed a neat programme giving the subjects and speaker for each meeting. Members of the Club took an active interest in these meetings and each subject was followed by good discussion. Parts of two meetings were set aside for the purpose of testing samples of milk brought in by the farmers; also question drawers. Judging from the interest manifest, we hope to repeat this work during the coming winter on a much larger scale.

Our Club holds two regular meetings each month, the subject and speaker being allotted at each previous meeting. In this way we usually discuss topics that are of peculiar interest to the members at that particular time.

Our Club has been the direct means of raising the standard of farming in this section; of bringing in better stock; of inducing a better system of feeding and caring for stock, and of creating a spirit of co-operation among the farmers, and I am sure the Department would be doing a great deal for Agriculture in Ontario if it would send out men to organize Farmers' Clubs wherever they could induce a few farmers to meet.

J. I. Graham, Vandeleur: There are two evils that have taken place in the neighborhood in which I live that would not have taken place had there been a Farmers' Club. We had a difficulty over our telephone system, and we bought a lot of seed corn that was not up to the mark. Had we had a live Club, these things would not have occurred, because we could have arranged the telephone difficulty, and we would have had somebody in the Club who would have known about the seed corn and where to purchase it.

INSTITUTE FINANCES.

THE CHAIRMAN: We will now take up the matter of Institute Finances and I will ask you to discuss the subject of "How we can place the Institutes on a Better Financial Basis.

J. A. WISMER, Port Elgin: The finances of an Institute, I think, are a very important feature and I think the whole matter can be summed up in the one word "economy." I pity the secretary who is working continually from hand to mouth. Some of them actually carry the Institutes from year to year. I see by the last report that our Institute carried over a balance of $169.35; compared with ninety-nine other Institutes in the Province, I think, we stand ninth. I would not judge the success of an Institute by the amount of cash that is carried over. We spent $55.75 for literature for the members. I understand that in some sections the President is paid a salary. We do not do that; the only salaried officer is the Secretary. The President should take the office as the highest honor the Institute can pay him.

A MEMBER: Don't you pay the President's expenses?

A. Yes. We never pay anything for the halls, and I do not think an Institute Secretary should allow himself to be imposed upon by having to pay for halls.

A MEMBER: How do you manage?

A. When I first became Secretary, if they asked me to pay for a hall I would not do so. I said the delegates come here free for the purpose of doing the community some good, and if the people will not give a free hall, we will go to some other place and shake the dust of this place off our feet.

Q. How do you manage in a town where there is nothing but a private hall?

A. Where there is a private hall we pay for the wood and light and janitor. We have three incorporated towns, and they do not even ask us to do that now. I had to hire a livery team a short time ago, and I said to the man, "What is it for the team?" and he said so much. I said, "Is that what you charge other people?" He said "What is that to you, it is Government money you are spending." I said, "No; you have got to give us that team at the same price you charge anybody else."

Q. How do you make this money that you have in the treasury?

A. From excursions. That is the only source of revenue we have outside the Government grant. I think the item of expense for programmes is justified.

THE CHAIRMAN: We will close this discussion, and take up some other item. I understand that the excursions have not been as profitable as formerly, and the risk is greater. The question will arise, "How are you going to finance the Institutes?"

E. F. AUGUSTINE: We had only $2.63 in our treasury at the close of the year. I think the money is better expended for the benefit of the members than lying in the treasury. Lambton is a good fruit district, and we send for the best fruit men we can get, and it costs money. We have more than our share of speakers on the delegation and that costs money. We pay for the halls in some places. Our District Representative and the Institutes are working together. Last winter Mr. Porter kept the short courses going the whole season in Petrolia and he also gave short courses at Inwood and Brigden. The people got so enthused at Inwood that they asked me to come up and start a Farmers' Club. This year we will have a two weeks' short course in Alvinston, two weeks at Thedford, two or three days at Shedden and Wyoming and Warwick. We are going to have three District Representatives at some of our meetings.

EXCURSIONS.

THE CHAIRMAN: We must now discuss the question of excursions. Last spring I called several members together and we discussed the whole question of excursions. We did not get much satisfaction from the railroad men, because they could not say what would be done. The excursion rates and conditions are arranged for by the Eastern Canadian Passenger Association, and any changes have to be submitted to them. We laid our case before some of the officials and they said that they would bring our case before the Association. As there are no representatives from the G. T. R. or C. P. R. present I beg to suggest that a committee be appointed, composed of Dr. Creelman, because he is interested in these excursions, and two or three others. We want these excursions to continue because of their educational value. We will now throw the matter of excursions open for discussion.

C. F. RATH, Lansdowne: We tried to arrange for an excursion through our local agent and could not do anything, and then we sent to Montreal and were informed that as we were more than two hundred miles from Guelph, we could not secure an excursion. We finally went to Ottawa, and interviewed the Railway Commission, but they did not give us any satisfaction, and we dropped the matter about three years ago. I think it is a great injustice to Leeds that we cannot get an excursion to our own College.

WM. COLLINS, of Peterborough County, stated that the railway companies had not lived up to their agreements in some instances. He also drew attention to the increase in guarantee and rates. The profits to be divided among the three Institutes which co-operated in running the excursions from Peterboro to Durham ranged from $6 to $150, out of which the advertising and other local expenses for the three institutes had to be paid. If we cannot get better terms we will have to drop the excursions.

D. S. WILLIS, South Huron: I think if we had some fund to overcome the loss we make when we have a wet day for our excursion, it would help to overcome some of the difficulty we have in arranging excursions.

A MEMBER: I understand that the railway companies would like to cut out the excursions altogether, and we should appoint a strong committee to interview them.

THE CHAIRMAN: We have not the time to discuss the matter any further. If any of you have any suggestions we would be glad to have you forward them to the Department.

Moved and seconded that the Superintendent be empowered to select a Committee to confer with the railway companies re excursions.

A MEMBER: Last year we had correspondence with the railway people. They told us how much they wanted as a guarantee, and I said "If we have to put up that guarantee, we had better dispense with the excursion," and the result was that on again writing to the company we had the guarantee cut from $250 to $125, and we carried on our excursion the same as before.

THE CHAIRMAN: We must not overlook the fact that the Institutes spend considerable money in advertising excursions, and the officers and directors devote considerable time, with no remuneration, in arranging details, in advertising and running the excursions. We cannot, however, devote further time to the discussion of this feature in connection with the Institute work.

LOCAL ASSISTANCE TO INSTITUTES.

THE CHAIRMAN: We will now take up the question of local assistance. I do not think that Institute work or other educational work along agricultural lines can be made effective without the hearty co-operation and active interest on the part of local men who are familiar with local conditions. Take the scientific farmer and put him in a new section and he will have something to learn from the experienced men of the locality. He will, no doubt, have theories that he will have to change in the course of a few years. I do not wish to belittle scientific farming, for a judicious application of scientific principles is one of the strongest features in successful farming. We must have the hearty co-operation of the local men in order to make our Institute work a success. We will now hear from several members on this point.

C. M. MACFIE, Appin: I do not wish to take issue with what our worthy Superintendent has said with regard to utilizing local assistance. One of the difficulties we found in using local men was the crowding out, to a certain extent, of discussion, and it militated against the success of our meeting. The Superintendent has told you that local men understand local conditions and they can very often set the delegate right. We have found that in recent years we have had to dispense with local help at the afternoon meeting if we were going to use the delegate at that meeting. We have found that the most profitable place for the local talent is in discussion. We expect the delegate to lead in the discussion and we can rest assured that if he gets away from the facts, as far as local conditions are concerned, the discussion will soon put him on a right basis. I believe there is a place for local talent and that is in the Farmers' Club. This is what we have gathered from our experience in West Middlesex and we have some very successful meetings.

A. W. VANSICKLE, Brant County: We have had some success in connection with local help in the North Brant Institute. For some time we had difficulty in getting local men to take part, but we have overcome that to a great extent by taking them from one district to another. We take the local man to the next township to the one he lives in to give his talk, and he feels freer to speak outside his own immediate neighborhood. If he is a partial stranger, he is not criticised in the same way that he would be in his own neighborhood. After we receive the announcement of meetings from our Superintendent, about the end of November, we call a Directors' meeting and we offer them a dinner at this meeting, and then we arrange the subjects for our winter meetings. The delegates from each particular section know the addresses that will suit their locality best. We hold the directors in each locality responsible for the local assistance. Mr. James Douglas, of our township, and his father before him, had been raising alfalfa very successfully, and he came to Onandaga and gave us a nice talk on growing alfalfa. As a result of that talk the farmers in the neighborhood took hold of the growing of alfalfa, and it has been the means of wonderfully increasing their bank accounts. It is the best thing that was ever taken hold of in our township, and that is one instance of where local help has been of assistance.

A MEMBER: You say you give the Directors a dinner. Can you do that out of the Institute funds?

MR. PUTNAM: I think it is only fair that when the Directors are called together they should have their dinner paid for out of the Institute funds.

A. J. FALLIS: If we had more local assistance it would help with the finances.

The Chairman: The men in charge of the work of the various clubs in Waterloo County arranged last winter for certain men to take up beef growing at their Club meetings. These men visited two or three adjoining Clubs, giving practically the same programme at each point. The local men take part in the discussion. That same method has been followed successfully in the Women's Institute work.

W. H. Fraser: We have always used local talent in East Huron; if not the Institute would be dead. We use local talent right in their own neighborhood. We have to limit them to time, because they have more to say than anybody else. If we could solve the problem of getting the speaker and the audience acquainted, we would help the work a great deal. Many of the farmers are suspicious of the educated and scientific farmer. Our meetings are growing and we do not have any surplus at the end of the year.

Mr. Howard: Are we allowed to pay local helpers who may make speeches or read papers? I believe that one local speaker and one delegate sent out by the Department would give us as good service as two delegates sent out by the Department, although they always send us good men. I think the Department should put some price on what we should pay local men.

The Chairman: That is a matter that should be left to the Institutes. That money is yours to spend in the interest of Agricultural education. If you want to pay a local man something for his services, I think you are entitled to do so.

W. J. Westington, Plainville: We endeavour to encourage local talent, and we offer to pay them for any papers they give, but it is very seldom accepted. We pay all expenses, and endeavor to have very little money on hand. We do not simply associate ourselves with the farmers, we have doctors and lawyers co-operating with us. We get as many members from the town of Cobourg as any other locality. We frequently ask a leading lawyer, who is also a stock man, to go out and address a meeting. On one occasion we expected a gentleman to go to Coldsprings to address a meeting, and our Secretary phoned and said he had not arrived and asked what about Mayor Field, and we got him to go out. He is a prominent merchant of the town and a graduate of the Ontario Agricultural College. He said his great regret was that he did not go on the farm and not into mercantile business. Last year in order to make a meeting successful, we asked a lady to occupy the chair. This year she is President of the ladies' organization. We offer prizes for forestry, and also for pyramids of fruit, and last year the Government bought our outfit and sent it to the Fruit Festival at London. This year we had one of the doctors from town address us on hygiene and sanitation, and he actually thanked us for the privilege of going out and addressing the farmers. We have never gone into the excursion business. When we are a little short we go to the municipality and say we want a little assistance, and we get it. That shows the great interest they take in the matter. In appointing officers we do not neglect the heads of municipalities; we always give them a place.

AFTERNOON SESSION.

LITERATURE AND MEMBERSHIP.

Mr. Geo. A. Putnam (in the Chair): We will now have a discussion relative to literature and membership. We hear it stated sometimes that Government reports, both Provincial and Dominion—those issued by the Department of Agriculture as well as those of other departments—are not generally read by those who receive them. There may be more or less truth in this. On the other hand, we meet many who say that they have complete sets of the various reports sent out to members of the Farmers' Institutes, and they consider them a very important part of their library. When one looks carefully over the reports of the Dairymen's Associations, the Experimental Union, and the Fat Stock Associations, he will find more or less repetition. It has been suggested both inside and outside the Department for several years that the publications sent out by the Department should be systematized, and the information gotten out a little more in season, and that practically all the addresses and papers bearing upon one line of work should appear under one cover, so that a publication on horses, apple growing, seed selection, poultry raising, etc., would be a standard for several years at least. I would like to hear from some of the delegates as to whether or not they think the literature as published and sent out is appreciated by the members generally. The literature for the last two or three years has been slow in appearing. This is partly due to the great amount of Government printing which the one firm is called upon to do. The desire of the Department is to place information in the hands of the farmers in a form which will be of the greatest value to them and have it reach them in a seasonable time.

Following the statements made by the Chairman, there was a general discussion in which some of the officers of the local Institutes stated that there were some complaints of non-receipt of literature, while others reported that there were no complaints in their ridings. One speaker thought that probably the Post Office was to blame for the delay in some instances.

The Chairman explained fully the systematic way in which the names of members were recorded, and the reports and bulletins addressed from stencils kept in separate trays for each county. "We can tell for three years back just what reports and bulletins have been sent to each member. If the names and addresses of members who complain are sent to the Department, the officials will gladly send back reports so far as we have them, and also inform the person concerned as to whether or not the reports had previously been sent, and where."

A Member: I think the reports invariably get to where they are sent. You will find every report sent out for years at our house. We have the reports of the Agricultural College since the first, with one exception. I never throw away a report; I save them for the boys and girls, you never know when they may be required. I think the trouble is that they are thrown aside, and then when they are wanted they cannot be found.

The Chairman: One secretary reported that he was soliciting for membership some time ago, and the man whom he was canvassing told him that he had not received his reports; the secretary drew his attention to some envelopes on the corner of the table, and there were three of the reports which had been received some time before but never opened.

R. H. McCurdy, East Elgin: I find that the literature sent out by the Department is appreciated. The clergymen in our district interest themselves in it. I had one clergyman become a member, and if his reports did not arrive in time, he always asked about them.

THE CHAIRMAN: Very often we find that the secretaries, through no fault of their own, send in a name one year, as, say, "Robert J. Johnston" and the next year it will be "R. Johnston" and the next "R. J. Johnston." This is likely to result in disappointment.

WILLIAM SHANNON, Lindsay: I think the literature is a good thing, and we must all admit that the Farmers' Institutes are a grand thing. Although every person does not come out to the meeting, yet the seed is sown and has a good result. I do not know how the money could be better spent than in the distribution of the literature. I believe the people get it too cheaply to appreciate it.

ARTHUR CHRISTIE, Dundas: I think the literature is of great value to the farmers, in fact I will go farther and say that I think it has been of more value to us than the Institutes. A man will go to an Institute meeting, but cannot carry away all the facts and information he receives; but when he gets it in printed form he can take time to digest it and put it into practical use. The farm to which I came had an old orchard, and my wife said "You had better cut that down it is getting full of worms." I went at it with a pruning saw and got a sprayer, with the result that this year the old orchard has yielded nearly five times as much as before. I got the information that enabled me to do this from the bulletins sent out by the Ontario Department of Agriculture, and therefore I say this literature is a blessing to the farmers. We find that the successful man is often slow in speaking at the meetings. This should not be. Last week some twenty-five carloads of Holstein cattle left the County of Dundas. I attribute a great deal of this success to the Farmers' Institutes.

THE CHAIRMAN: The membership has been secured largely as a result of effort on the part of the Secretaries, and we should be able to get the Directors to do part of this work. I think if a special effort was made that we could double the membership. Even in the banner year of our Institute work the membership was not what it should have been. We should have more than 23,000 members. That is a mere handful of the farmers of the Province of Ontario. We should have 100,000 farmers taking an active interest in this work.

R. H. MCCURDY: There are a number of Secretaries here to-day, and they are the men we want to get after. In East Elgin there was a section that was practically neglected. Our Secretary and President are workers. I sent for some membership blanks, and when attending auction sales in the winter time I sold tickets, and in that way got a number of members in the neglected part of the county. I think it would be a good idea for the Secretaries to find out men who would do work of this kind, and send them tickets. I am sure it would result in obtaining more members. The Secretary can only reach a limited number of people, and our districts are larger than most of us realize.

J. COUTTS, Simcoe: Some years ago we had much trouble in getting members, and at one Directors' meeting the Directors each agreed to get in ten members. We have since increased our numbers.

A MEMBER: I think it would be a good plan to appoint two Directors for each township, and give each one charge of half the township; then keep track of the members that each Director brings in, and let it be mentioned at the next Directors' meeting "so and so brought in so many members." Let the Directors realize that they are expected to do some part of the work.

A MEMBER: I think one of the troubles in getting members is that we are running too much in the one line. We should try to make our meetings more interesting. If they run along in the same line too long the Institute will die a natural death.

WILLIAM SHANNON: It seems to me that it is humiliating on our part to think we have got to go out and drum our neighbors for a quarter. I wish we could get something that would make our people wake up and pay 25c. for something that is worth $5 We tell them how to farm and manage their stock, and we have short courses that tell the boys where to start off at. The boys of to-day have a wonderful opportunity compared with the men of forty or fifty years ago.

J. H. WISMER, West Bruce: One of the great troubles in West Bruce is that all the work devolves on the Secretary. I heard the Secretary of the Fall Show say that he has the same trouble. They appoint eighteen Directors, and that is the last he hears of them until the day of the show; and then they come up to the Assistant Secretary, a nice young lady, and they say, "Please pin a badge on my coat," and the rest of the day they spend walking around the grounds. We have twenty-two Directors, and if each one would bring in five members, it would assist greatly in increasing the membership.

THE CHAIRMAN: It has been suggested from Prince Edward County that the membership fee be increased to 50c. How many would be in favor of that? (Lost on division.)

R. J. WHITE: We have home good directors in West Lambton. Some years ago we passed a resolution allowing five cents for each member brought in by a Director. That worked along until about 1909, when at our annual meeting a resolution was passed that the director who secured the most members should receive a free trip to the Fat Stock Show at Guelph. That has been in force ever since, and, I may say, with good results. It has averaged all the way from forty to one hundred members to get the trip. Last year I did much to advertise the Institutes. I got out a book form and solicited advertisements and made $40. These books were mailed to every ratepayer in the riding and we have seven thousand of them. This year I am pretty nearly at my wits end to know how to get members. When I consider that we have seven thousand ratepayers, and our membership has never exceeded five hundred, I consider we are not getting as many members as we should.

A MEMBER: If the Department takes away our literature and also our ticket to the Winter Fair, how are we going to get members? I know that in West Wellington they appreciate the literature very much. After this year the twenty-five cents paid to the Institute will not be any benefit in going to the Winter Fair.

THE CHAIRMAN: The Department has no intenion of lessening the literature, but we want to know from you whether you can suggest any better way of getting it to you. Our desire is to give the farmers as much literature as they will appreciate, and give it to them in the best form. The reason they are cutting off the Fair tickets is that they are very much overcrowded, and the Fair is now an established annual feature, and we all know what it means. You will continue to get three admission tickets for one dollar.

J. FRED, Bruce Mines: It is two years since we stated our Club at Bruce Mines, and we had to work hard to get it started. One night we hold a meeting at Bruce Mines and the next night of meeting at another place. We are getting along very well. The first year we bought a Holstein bull, and we have bought some seed. We are getting good results from the literature. The labor problem is facing us to-day. I think we should make a special effort to keep the boys on the farm.

A MEMBER: A number of the farmers in our district think that much of the literature comes out at the wrong season. They would like to have the literature sent out in the winter months.

THE INSTITUTES FROM THE WORKERS' STANDPOINT.

THE CHAIRMAN: The Institute lecturers have a great opportunity in visiting different parts of the Province to compare one part with another; they should be able to give us a few suggestions and we hope a few words of encouragement.

ANSON GROH, Preston: We meet here as workers, whom are we working for, and what wages do we get at it? The Department of Agriculture works for the farmer and the farmer works for everybody else who works and for every lubber who will not work. It is difficult for the Department to find workers for the work they have to do. Sometimes I get into a district that I feel I am not familiar with. We have got to do the best we can, study our audience, and try to find something that will interest them and improve their condition. Is there anything that agriculturalists can improve upon? I believe that if the average was up to the best, we would double the product of this country. I like to try to show the farmers how they can lighten the labor on the farm and increase the revenue, and when we can do that we touch the farmers in the right place, and that is an important part of an Institute worker's duty. If you know that what you are telling farmers to do means that they must increase their labor, then your talk is in vain; but when you can show them that it means less labor and bigger returns, then you have some real good reason for talking. There are so many things that require greater labor. I believe that if our work was rightly done and no labor wasted we would get bigger returns with less labor. There are too many things done that should not be done at all; for instance, milking an old cow that gives you very little milk is something that should not be done. I am not of the opinion that Institutes are worn out.

Man, put him where you will, must have leaders; he never will make progress unless he is lead. It may be that some young man in the audience will become the leader of the community. A man who is not a thinker will never become a leader. If there are only a few in the audience, and we are hammering away, we have the satisfaction of knowing that good will be done, because some of these men we are talking to will go and tell the story to their neighbors, and good will result in that way. Don't think that because your neighbor is not at the meeting he is going to be fifteen years behind, for he is watching his neighbours. Ontario has been the leader in agricultural work in the Dominion of Canada. Why is it that Ontario is acknowledged the leader? It is from the slow hammering away along these lines, and, therefore, I am not discouraged. The manhood that upholds the nation comes from the farm. The character of our people depends upon the rural districts. I want to teach the young men that there is no place where they can do more of good for humanity than on the farm. We are teaching that agriculture is a noble calling. I think a number of good workers will be developed in the Farmers' Clubs. The Department cannot make much use of a man who has not first done something, and then he must be able to tell how he did it. Remember the Department is doing all it can to find the men. Are you doing all you can to supply them? While the Department and the workers are doing their best, still there will be a good many things that are not done just as you would like to have them done. We have a few Clubs in Waterloo County, and they are doing a good work. Last year in one district, they tried to get telephone communication, and they could not, and then the Club got a move on. They appointed a committee on Friday evening to see if there was not enough people who wanted telephones. They had men on the road on Monday morning and they succeeded in getting the price of 'phones dropped down to nearly half what they had been. The price quoted to me dropped from $28 to $15. That is the kind of Club a farmer can use, if he only realizes the sweep he has. I think it is the worker's duty to point out the immense power the farmers have if they will only co-operate one with the other. The farmers are standing together better to-day than they did five years ago. There are things done to-day that the farmers could not do ten years ago. If you go over the Province to-day you will note that things have changed for the better.

J. W. CLARK, Cainsville: I know some of the difficulties a delegate has in going around from place to place. It is up to us workers to try to improve if we are to continue in Institute work. We must adopt some new ideas for getting the people out, and for giving them information that they can carry home with them. Some two years ago I started to use a lantern, and it has worked with good results; and I think the Department would be justified in supplying one to every two or three delegates. By means of a lantern we can show the people what we are talking about, and then they have something definite to carry home with them. I am sorry to say that we have some Institute speakers who give a flowery address with very little in it. Sometimes a farmer cannot get out to the afternoon meeting, and he comes to the evening meeting and listens to one of these flowery addresses, and the chances are that he won't come out the next year. The lantern can be used in any building, and with it you can entertain an audience in the evening for one or two hours and make the talk very instructive. It is a drawing card in bringing out the people, because it is something new. In many places the hotels have been cut out, and we have to go to private houses; the people have an idea that they ought to entertain the delegates after the meeting, and you have to stay up until one or two in the morning. The people do not mind this, because it is only one night in the week for them; but for the delegate it is a different matter when he has to do it six nights in the week. One hates to tell his host that he wants to go to bed. I would rather not have any entertainment at all. As soon as I get to the house I would like to go to sleep and get a good night's rest, so as to be fresh for my work in the morning.

R. S. STEVENSON: It is an unexpected pleasure for me to have an opportunity of saying a few words. Speaking to you as one of the oldest Institute workers, I can say that I have seen the Institute grow up from its infancy. I had the pleasure of becoming a member of the first Institute ever organized in the Province. I have had opportunities of seeing the Institute grow in a way that many of you have not. I have come to the conclusion that the work of the Institute is not by any means done. I would like to know how you could get a representative meeting such as you have this afternoon, if it were not for the Institutes. I think that is evidence of the value of the work and the work is still going on. There is lots of work for the Farmers' Institute to do. Farming cannot stand still and the man who does not keep up to the times in farming must fall down in the race.

We workers have some difficulties to contend with. One was mentioned by Mr. Clark, the habit of entertaining. Now, the people do it out of goodness of heart, but I would much rather go to bed as soon as the meeting is over. I do not think the Secretary should have to do all the work in connection with getting new members. It is the duty of the directors to see that new members are secured. I would suggest that each director be given so many names, and that he should be held responsible for these names. I think that when a man is asked to join the Institute he should pull out his quarter and pay at once. I would not coax men to join. Another thing that has struck me very forcibly is the lack of local help. That is one reason why there is a scarcity of Institute speakers. It is a great mistake not to have local men speak at every meeting. What is going to happen in a few years, if some new men don't come out? The Farmers' Clubs are going to help get over this difficulty; there are lots of young men in the Clubs who are quite capable of being public speakers. Wherever we have a good live Women's Institute we always have a good meeting. I would urge upon every Institute in the land to work hand-in-hand with the ladies, because the Women's Institute is a great help.

A MEMBER: Where do you think the Club meetings should be held, in the schoolhouse or a private house?

A.—I do not see why the schoolhouse would not be a good place. It is rather hard on the people to have to turn their homes upside down, and have a lot of people in.

A MEMBER: Don't you think it would be harder for the shy fellow to speak in the school-room?

A.—There are some young men so bashful that they would not get up even in their own house.

RESOLUTIONS.

Moved by J. H. WISMER, and seconded by N. J. WESTINGTON: "That this meeting of delegates of Farmers' Institutes and Farmers' Clubs express its opinion that local organizations of farmers can be made one of the most forceful factors in agricultural betterment. We would recommend the Department giving every assistance to such organizations, with the view of making local clubs the basis for the district organization, and that the officers advise with the District Representatives and the Department of Agriculture in planning for and holding agricultural meetings from time to time. We would also like the Department to recognize the Clubs, in making arrangements for meetings that are held at any time."

WM. CHANNON: Does that mean to do away with the Farmers' Institute, and give it to the Club men, or that the Club is to be a feeder for the Institute?

THE CHAIRMAN: The object is to have the Club as a feeder for the District organization, and that the Department encourage Clubs and give them some more recognition. The Club work is regarded by many of us as one of the most effective means of agricultural betterment. Up to the present time the Clubs have not been given much besides encouragement. True we have sent speakers out to them sometimes. The needs of the farmers in one section of the same county are not the same as they are in other sections. This is more true of some ridings than others. In the County of Halton they want dairying, in one part, and horses and beef cattle in another, and fruit and vegetables in another. You cannot get any one man to cover that field, and we believe that by recognizing the Clubs and arranging to send speakers of a certain class to the Institute meetings, in accordance with the express desire of the men in the different localities, and arranging the meetings in three or four different series, instead of one, that we will serve the people more effectively and possibly at no greater expense. One man who is a specialist and a lady delegate, will answer the purpose for these meetings, and you will always have a good lively discussion at the afternoon meeting, and an enthusiastic evening session. We are trying this system in Waterloo County this winter. I would be pleased to have an expression of opinion on this subject.

A **Member**: As Secretary of our Institute I have consulted the Clubs at various points, and I find it a great advantage to have the benefit of their opinion and advice.

The motion was put to the meeting and carried.

C. **O'Riley**, East Peterboro: You are all aware that livery and hotel bills have gone up, and as it is more expensive to carry on the business of Farmers' Institutes than formerly, and I consider that the grant should be increased. Therefore, I have much pleasure in moving: "That a committee, composed of Mr. Channon, of Victoria, Mr. A. J. Fallis, of Durham, Mr. Aylesworth, Mr. Tummon of Hastings, and Mr. R. S. Stevenson be authorized to prepare a memorial or wait on the Government to solicit the increased grant.

The motion was seconded by J. W. Coatsworth. Carried.

J. G. **Gooderham**, Vandeleur: I have a resolution that I desire to submit to the meeting: "We beg, in accordance with instructions from the special meeting held early in the afternoon and consisting of representatives of the Farmers' Institutes, Farmers' Clubs and Members of the Institute Staff, to place on record our hearty appreciation of the services of the Superintendent of Institutes, Mr. G. A. Putnam, and to testify to the able, efficient, and courteous manner in which he has discharged the duties appertaining to his office as Superintendent, and to the satisfaction of the various officers and workers identified with the different branches of his department. We hope that he may be long spared to the work which he has so heartily undertaken to develop to the highest point of efficiency."

I have been Secretary since he was appointed, and I think he is the right man in the right place, and I have much pleasure in moving this resolution.

D. **James**, Thornhill: As seconder let me say that this is not a mere formal resolution. Sometimes we move a vote of thanks as a matter of form. I do not believe in placing flowers on the departed. I believe words of appreciation should be given when a man is in full, active work. It spurs him on to greater activity, and he sees many things in a new light. Such a resolution as we have before us from such a large concourse of workers, comes with good grace and I have no doubt it will be passed unanimously. While some little fault may be found occasionally, we do not know the work of the inner circle, or the obstacles that have to be overcome and the hard work Mr. Putnam has given from time to time.

The motion was put to the meeting by the mover, and carried with applause.

Mr. Putnam, in reply to the resolution, said: It is, indeed, encouraging to those who have to do with public work to know that their work is appreciated. No person knows better than I do, that there are many things which should be done in connection with this Institute work which are not done. I am a firm believer in a man, whether a public servant or a business man, working faithfully and hard, but not overtaxing himself. As Superintendent of the Institutes, I realize that much more could be done, and all to good purpose. By getting out additional literature, getting in touch with successful men from one end of the Province to the other, visiting their homes, and co-operating in making special preparation for institute work, etc., more effective work would be done. This resolution is quite unexpected, and I heartily appreciate the way you have responded to it. This meeting has been an inspiration to me and I have received suggestions and encouragement which will assist materially in making the work a greater success than it has been.

Some slight changes may possibly have to be made in our methods of work and in our organization, but you can depend upon the Minister of Agriculture and those connected with his department to always take into consideration the views of the men in the field before any radical changes are made. That has been the policy in the past, and we can depend upon the Hon. Mr. Duff to continue it. It is difficult to get a sufficient number of capable workers. Every season, we are disappointed in several men we had counted on. These men write in at the last moment and say, "I feel that I cannot leave the large interest that I have at home to go out on Institute work."

While I have made an honest effort in co-operation with lecturers, permanent officials and local officers to make the Farmers' Institutes and the Women's Institutes, and the Dairy work a success, you can readily understand that with such a large field there are many improvements which it takes some years to carry into effect. The Hon. Mr. Duff has stated that he is quite prepared to give every assistance. With additional support in view, we hope to make our short course work, club work and demonstration-lecture work a little more effective than it has been in the past.

ADDRESS.

Hon. J. S. Duff, Minister of Agriculture for Ontario, Toronto.

I am very glad, indeed, to have the opportunity of putting in an appearance even at this late hour. At one time this afternoon I thought I would not be able to be present. Some people think we haven't much to do up at the Parliament Buildings, but I find that some days are more full of work than I would desire. Often when the day is over, I feel more tired, although not from physical work, than when I used to work pretty hard on the farm.

Some reference has been made to the self-sacrifice on the part of the gentlemen who do work in connection with Farmers' Institutes and Farmers' Clubs, and other organizations connected with agriculture. There is this to be said in reference to that: if you can show me any organization in this Country that has been shoved along and kept abreast of the times and that is doing good work, that has not behind it a great deal of self-sacrifice, then I will not discuss the matter further. You cannot go into any section of this Province to-day, that you will not find the small church on the side road up to the large church in the towns, kept up by a few families who devote their energies to keeping them up. The same is true of every other line of work. When the time comes that the Farmers' Clubs or Institutes or any other kind of agricultural work are being kept up without self-sacrifice on the part of some persons, who do work without getting pay in dollars and cents, then they will have pretty well passed out of existence. (Applause.) That is true of the merchant, it is true of the men who are engaged in industrial life, and the same principle prevails if you carry it on down into private life. Who are the men who have made a success of farming? Who are the men who have bank accounts? Who are the men who have been able as their boys grew up to provide them with farms? They are the men who have devoted themselves, early and late to their own farms, and not only themselves, but their wives and their sons and daughters have worked faithfully from early morning till late at night. I can name a good many men, who as boys had not the price of a suit of clothes, and who to-day are well to do farmers. These men followed that course of self-sacrifice. The same thing is true of the merchant who makes a success of life.

This Province is so large and its resources are so great, and its agriculture so diversified that a man has to leave his own business and get away from his own farm for six months of the year travelling through the country, and even then he will not be able to grasp the immensity and greatness of this Province. Few realize the great opportunities we have in this great Province of Ontario.

I am going to repeat what I have said before: When I became a member of the Government and commenced to move around in the Province (before that I was at home taking care of my own farm, except when an election was being held), I had only the view point of the man at home on his own farm; and when I commenced to move around, the thought that was uppermost in my mind was the immensity and diversity of agriculture in this Province. What struck me then has never left my mind, that what we should do in this Province is to make up our minds, after reasonable thought, as to what each particular section is best adapted for, and then bend all our energies to make that line of agriculture a success in that section. We have sections particularly adapted to dairying. We have sections where money could be made in handling sheep, and these sections are practically not useful for anything else. We have sections where corn can be grown for seed, and where they can grow tobacco to perfection. We have other sections that are adapted to the growing of the very best fruit that can be produced on this earth. Each year is adding to the fruit belt and in some sections we have had a regular transformation. At the last session of Parliament, we got a large amount of money from the Dominion Government, and we devoted that money to the best interest of all concerned in the carrying on of our agricultural work. Of that $14,000 went to Mr. Putnam's branch, and that is why he has been able to do some extra work this year. (Applause.) We spent part of the money in aiding the fruit growers. There is a great opening for Ontario fruit in the Western markets, and there is sharp competition from British Columbia on the west and our American cousins to the south. Just a few days ago I saw a report from the West: "Ontario apples not quite up to the mark." That has worried me a little. I put up a few barrels of apples to be sent to the West, I packed them myself, and I am not an expert packer. I filled one barrel about two-thirds with Spies and the balance with pears, and shipped it to Winnipeg, and it had been gone about two weeks when I read this report. But the following week our people got word that it arrived in perfect condition, and there was not a spot on the apples, and they were in as good condition as when they left our farm. If the apples are properly packed, there is no reason why a single carload should leave this Province and not arrive in first-class condition in the Western market. (Applause.) Then we get down to the point as to whether or not we are doing our duty when we will allow carelessness or dishonesty to play a part in our dealing with people whom we want to get and keep as our customers for our fruit. There is no other way of getting around it, the man who packs a barrel of apples and puts little ones in the centre or a poor class in the bottom, is no better than the man who climbs into the window and takes money out of a sleeping man's pocket. Dishonesty is dishonesty, whether in packing apples or straight stealing. I have often thought that the Farmers' Institutes and Clubs have a great work to do in impressing upon the farmers of this Province the necessity of not only doing business on business lines, but in doing it in such a way that they would be willing to have their names printed in big black letters on every package produced.

We are opening up a new section of this Province and it will not be many years before we will be growing on the clay belt as good number one hard wheat as can be grown in the world. What does it all mean? It means that in the southern portion of the Province, we can grow tender fruits, and then in the North Western part of old Ontario we have mixed farming, and I do not think there is a better section on the face of the earth than the counties of Wellington and Waterloo and that section of Ontario. In Eastern Ontario, we have a great dairy country. Mr. Putnam has in his office a large map covered with little red dots showing where the cheese factories are in the Province, and there are a great many of them in Eastern Ontario. Then we have the section embracing Muskoka and Parry Sound. If we had some person who could take hold of large blocks of that land, it would be a great country for sheep. Then when you go farther north, you have all sorts of opportunities for different lines of farming. Some time ago I had a trip through the far North Western portion of the Province. We left here on Tuesday evening and we did not stop until we got to Dryden, away up West of Fort William. We visited a large pulp mill that is under construction, and it is marvellous to see the great works they are erecting in that section and the machinery they are putting in. A number of farmers met us and they told us of the great clover they were able to grow. From there we went to Kenora and Keewatin. They have a few splendid townships in that section. From there we went to Winnipeg and came down around the Horn and through the Rainy River section. I was told that there are between eight hundred thousand and a million acres of land in the Rainy River Valley. They had a yield of over 50 bushels of wheat per acre on one field near Verdun. We attended one of the Fairs up there, and I never saw a finer exhibit of the ordinary products of the farm. I am not speaking of a Fair like Toronto Industrial, but of the ordinary Fair. This year, the Government decided to put in a Prison Farm near Fort William, and when Mr. Hanna came back he had all sorts of letters from people wanting to sell land; they thought they had all the land up there that anything could be grown on, but to their surprise the Government owned a large block of land about six miles from Fort William and there is where the Farm was established. They had to dig down nine feet in order to take the sewage from the buildings, the trench passing through splendid clay land. This block of land in a few years will be producing an enormous quantity of farm produce and will help to carry on the work that Mr. Hanna has introduced. I am only stating this to show you that right close to Fort William and Port Arthur we had this block of land, and people who lived there for thirty years did not know there was such good land in the vicinity.

I have been handed a paper by some person in the audience saying that the Board of Trade has received a report as to the high cost of living and the enormous expenditure for war equipment. I think I am safe in saying that the people who have to buy the stuff have a remedy in their own hands, there is lots of land in this Province to work. (Applause.) They can go out and buy a piece of land and get in competition with we people who are growing the stuff. I have never yet taken any stock in this talk about the high cost of living. No legislation can control it. The industrial progress of the age is such that the people are leaving the farms and hiking to the cities. There is a class of men, and it is a great pity, who would rather drive a street car in Toronto than be the owner of 50 acres of land in the country. So long as men feel that they want to get away from work on the farm, and feel that they would rather do anything else than work on the land, so long will this state of things continue. It is all the better for the man who takes care of the land that God has given him, and if he is true to the position he occupies, he need not worry about the high cost of living.

I have always said and I say now, that the proper way to prevent war and to preserve peace is to be prepared for war. (Applause.) We would not occupy the position that we do to-day in this lovely Province of Ontario if for the last one hundred years we had not had the protection of that grand old Navy of England. (Applause.) We would not have been permitted, as we were a few days ago, to celebrate the battle of Queenston Heights when Sir Isaac Brock and Captain McDonald laid down their lives in order that Canada might remain British. Our fathers were proud of the achievements of these men, are we less proud of our Country and the nation we belong to than they were? I would not give the snap of my finger for the Canadian who is not proud of this Country, proud of her record and proud of the share she has taken in the up-building of the British Empire and prouder still that we are the great right arm of that great Empire. (Great Applause.) If I had my way there is not a boy in Ontario who would not learn his drill in some way. I believe every boy should be taught to drill, not for the purpose of going out to fight, but if we ever had to defend ouselves we would be in a position to do so. We have a great many agencies in this country, but I do not think there is any so important as creating a true, honest, high national ideal. The history of England and the history of Canada is such that every one of us can be proud of it. Mistakes have been made from time to time, but this world has never had any nation that has done so much for humanity as the British Empire. Premier Asquith made a very strong speech the other day in relation to the terrible war that is now going on, and it was most assuring. Why was he able to do that? Because of the position that England occupies, not only as a great nation, but because of the position she occupies in diplomatic circles. We do not have sufficient pride in our nationality. The 13th of October came on Sunday, and I was in church that morning, in our own little kirk that I have gone to all my life, and if a man had dropped from the clouds he would not have known from anything in the hymns, or the sermon or anything else but that he was in Van Diemen's Land, although it was the one hundredth anniversary of the victory that saved Canada to the British Crown. I believe we have a great work to do in this Country, and I do not think there are any men more fitted to carry out that work than the men on the farms who are connected with the Farmers' Institutes and Clubs. There is something more than money in this world. (Hear, hear.) What is a million dollars worth to a man if he does not use it to good advantage. Every one of you know of men in your locality who have not amassed a great amount of money, but when they died they left a character behind them that was worth more than money. They made sacrifices during their life time that endeared them to the people, and they have been remembered long after they passed away, and the money grabber who lived in the same neighborhood has been lost sight of. Remember it is not all money. The things that should be uppermost are high ideals and character building.

I want to congratulate Mr. Putnam on the very nice tribute of respect that you paid him this afternoon. I may say that I was very glad, because, after all, as the gentleman who seconded the resolution said, there is not much use in placing flowers on a man's grave. We should give the flowers and the pleasant words of appreciation during life time. If you can say a kind word say it while a man is alive, and don't wait till after he is dead. I am very glad that you did not wait until Mr. Putnam was dead to give him this little mark of your appreciation.

I desire to close by expressing the great pleasure it has been for me to meet with you and say a few words. Do not think for a moment that I expect you all to think as I do on these things. I have merely thrown out a few thoughts that I hope will help you to go back to your farms and have a greater influence than ever before for good amongst the people where you reside and with whom you come in contact from day to day. (Applause.)

The Chairman: I am sure you have listened with a great deal of interest to the remarks of the Hon. Mr. Duff. I thoroughly appreciate the remarks he has just made relative to the resolution you passed as an expression of appreciation of the work I have done. Having been in the Department for over 20 years, the work has grown to be a part of my life. I believe that one who has an opportunity of co-operating with the farmers and noble Canadian women from one end of the Province to the other in the good work which is being carried on, has an enviable position. I fully appreciate the hearty co-operation you have always given the Department. Most of you are doing this work without any remuneration, and you have sacrificed time and thought, and some of you incur personal expense, to see this work made more successful.

I consider we have had a right royal time at this Convention. It far exceeds the expectations which I had. We have heard, not at this Convention, that the Institute has seen its best days, but the enthusiasm here shows that it has only made a beginning, and with a few changes and the introduction of some new methods, I believe we can make this work a greater factor than it has ever been in the betterment of agriculture. (Applause.)

A Member: I move we have a convention every year.

Mr. McLeod: I have pleasure in seconding that motion.

The motion was carried.

A Member: There are not many boys here. I might say that the majority are past the middle age of life. We are all boys—perhaps we ought to be—but then in years we are not; and I was just wondering if perhaps we do not get into a rut in our Institute work. I believe that the secretary should hold the office for a number of years because he gets into the routine of the work, and he can do it much better after he has done it for a time or two, but the other officers, to my mind, should be changed. We have been following up the rule in our district to retain them only two years; I do not know but what one year would be better. I am going to make a motion that the Institutes change their president at least every two years.

A Member: I think that might largely be left to each of the districts to deal with that question for themselves. I think it would be rather high handed to pass a motion of that particular kind right here. I would not like to do it.

Mr. Putnam: The suggestion has been made that the president be changed occasionally. I think we may leave that to the good judgment of the Institutes concerned.

FARMERS' INSTITUTE CLUBS.

In the Institute campaign of 1907-08, a few Farmers' Clubs were established, and, from year to year since, through the efforts of the Institute lecturers and the District Representatives of the Department of Agriculture, the work has been extended. Much benefit has been derived by the farmers through these local organizations, and we have pleasure in presenting herewith extracts from a Farmers' Club booklet distributed to Directors of Farmers' Institutes in 1910, in the hope that the farmers generally will become interested in this feature of agricultural betterment.

It is gratifying to know that the appeal of the Department of Agriculture to the farmers of the Province to form clubs has been responded to in many sections of Ontario. Several counties have from six to twelve clubs, and isolated organizations are to be found in practically all sections of the Province. Waterloo County boasts of thirteen clubs and has formed a central organization (the County Board of Agriculture) for the purpose of furthering the interests of the individual clubs, systematizing the work and giving encouragement and assistance to each other.

The markedly beneficial results both to the individual and to the community, following the organization of farmers for the purpose of studying, discussing and debating agricultural problems, and improving themselves in a literary and social way, at a number of places throughout the Province, years ago, even before Farmers' Institutes were organized, and the benefits resulting from the work of similar societies formed within the past few years, give us assurance in emphasizing the importance of this work. The Department of Agriculture is much gratified to learn from various sources of the success attending the work of these clubs in many sections of the Province, and the good work being done by the Farmers' Institutes of the Province is strengthened very materially by local organizations, where even a small number of interested and enthusiastic farmers band themselves together for the purpose of studying the possibilities of agriculture in their respective localities.

Institute delegates, and others who have the opportunity of observing, have commented, time and again, upon the high degree of intelligence, and the up-to-date methods in those districts where opportunities have been afforded for the holding of periodical meetings for the purpose of discussing matters bearing upon the work of the farm. Many of the present day leaders in the agriculture of the Province are men who attribute much of their success to the early opportunities afforded through literary and debating societies and clubs organized for the study of agricultural matters and the interchange of experiences with their neighbor farmers.

We believe that many are ready for the formation of organizations through which they will be the better prepared to improve their stock of agricultural knowledge, and to lend greater attractiveness to their farming operations.

There are usually a small percentage of farmers in each locality who are producing a superior quality of roots, grain or fruit, and who are practising successful methods in cultivation, feeding, breeding of live stock, milk production, etc. If the methods followed by these successful men were more generally known, a greater number of the farmers in the vicinity would adopt similar methods. Then again, many farmers who consider the products which they are raising from year to year, of superior quality, would, if they had the opportunity of comparing notes with their neighbor farmers, find many ways and means of improving upon their present methods, and thus secure even better results and increased profits. We wish to afford the farmers a means whereby they will have an opportunity to make the best application of the great fund of agricultural literature which is within the reach of all, to utilize to best advantage the services of lecturers sent out from the Department of Agriculture from time to time, to exchange views on the results of methods adopted by the farmers of the locality; in short, to furnish a means whereby the farmers will have a systematic and attractive method of studying their own business in their own way.

The work of the clubs, so far as agriculture is concerned, need not, and should not, be confined to a discussion of methods for increasing the amount of produce per acre, the more economical feeding of animals, etc., but should also include co-operation among the producers of the district in the matter of purchasing supplies, and in the marketing of grain, roots, fruit, live stock and other farm produce.

The margin now existing between the amount received by the producer and the amount paid by the consumer is too great, and it is the producer's business to look well to the marketing of his produce.

We believe that in Farmers' Clubs will be found an opportunity for self-improvement for the farmers of Ontario, which cannot be secured in any other way. It is at once a simple and effective means to a desired end, and at comparatively no cost to those reaping the benefits. It is a means by which the information which is now placed in the hands of the farmers through the reports and bulletins of the Department, and the standard agricultural papers of the Province, as well as the leading weeklies, may be utilized to the best advantage.

It must be remembered that the degree of success attending this work will depend almost entirely upon the efforts of local men, successful farmers who have enthusiasm and ability, and who are willing to devote time to the work. Arrangements should be made at each meeting for definite subjects to be dealt with at the following meeting, or, what is better, a programme of topics with speakers prepared some months in advance.

ORGANIZATION.

The members of the Institutes and others who are interested are asked to place the matter before their neighbor farmers, and if thought desirable, plan to organize at the next Farmers' Institute meeting to be held in the locality, or to call a special meeting for the purpose of organization. It would be well for farmers in each locality to consult as to when and where the organization meeting could be held. We advise those who become interested in this line of work to communicate with the District Representative of the Department of Agriculture or the Secretary of the District Farmers' Institute regarding organization. Young men who are desirous of doing a real service to a community, both from a financial and social standpoint, cannot do better than organize a Farmers' Institute Club.

SUGGESTED CONSTITUTION AND BY-LAWS FOR FARMERS' INSTITUTE CLUBS.

PREAMBLE.

OBJECT. The object of this organization shall be to encourage and maintain a deeper and more general and intelligent interest in all that pertains to agriculture in the broadest sense, by holding meetings at which farmers may receive and give information, suggestions and experiences, and study together how best to improve themselves and to help their fellow farmers; also to afford an opportunity for debate and study to its members, that they may thus become accustomed to public speaking and help to develop talent along those lines that might otherwise remain dormant; to have them present addresses upon subjects relating to farming and dealing specially with the conditions existing in the locality; to increase the knowledge of and interest in the larger questions (not sectarian or political) of the nation, and which affect the social life and financial position of the farmer; to create and stimulate an ambition in our farmers, and especially the younger men, to be successful in the truest sense, and to not only raise the calling of the farmer to the place it should occupy in keeping with its importance to the state, but also to make use of his successes, opportunities and power to make Ontario a still more desirable Province to live in.

CONSTITUTION.

Article I.—Officers.

Section I.—(*a*) The *officers* shall consist of President, Vice-President, Secretary-Treasurer, two or more Directors, and two Auditors.

(*b*) The *Executive* shall consist of President, Vice-President, and Secretary-Treasurer. (Quorum, 2.)

(*c*) The Board of Directors shall consist of all officers except the Auditors. (Quorum, 3.)

(*d*) Committee may be appointed at the organization meeting, at a regular meeting of the Club, or by the Board of Directors, to take charge of such work as may be designated by the members of the society—Programme Committee, Lookout Committee, Experiment Committee, Live Stock Committee, Seed and Weed Committee, Farm Utensil Committee, etc.

Duties of Officers.

Section 2.—Their duties shall consist of such as usually appertain to similar offices in other societies. (See page 58 for suggestions).

Time of Election and Term of Service.

Section 3.—Officers shall be elected annually at the first meeting held after October 1st, and shall serve until their successors have been elected.

How Elected.

Section 4.—Officers shall be elected either by ordinary vote or by ballot, according to the desire of those in attendance.

Article II.—Membership.

Section 1.—Only persons engaged in agricultural pursuits or directly connected with agriculture in some other way shall be eligible for membership.

The membership fee shall be .... (10 to 25 cents) per annum and such further assessments as may be decided upon from time to time by a two-thirds vote of the whole membership. Non-payment of assessment will result in cancellation of membership.

Those who wish to become members of the Farmers' Institute for the riding must pay the regular fee, 25 cents, to the secretary for the riding. It is advised that only one member of each family join the riding Institute. Membership fee to the local Club is therefore distinct from membership in the District Institute.

Only those Clubs which have twenty-five members, twelve of whom also belong to the riding Institute, will be entitled to assistance at a special meeting from the Department of Agriculture.

BY-LAWS.

Place of Meeting.

Section 1.—The Club shall meet at least five times a year at such time and place as decided upon by the Board of Directors, or by those in attendance at the annual meeting.

Order of Business.

SECTION 2.—The presiding officer shall call the Club to order as near as possible to the time announced for the meeting. The following order of exercises shall be observed:—

1. Reading and approving minutes of last meeting.
2. Unfinished business.
3. Report of Committees.
4. Irregular or new business.
5. Regular programme.

SUGGESTED PROCEDURE AT ORGANIZATION MEETING FOR FARMERS' INSTITUTE CLUB.

At the appointed hour some one active in the calling of the meeting (if one of the officers of the riding Farmers' Institute is present, it would be well for him to so act) shall ask for the appointment of a chairman for the occasion. The chairman shall then ask for the appointment of a secretary, and shall either explain the purpose of the meeting, or call upon some other person or persons to do so.

If the meeting is in favor of organization, it is then in order to adopt a constitution and set of by-laws. Only those who intend to become members should take part in the adoption of constitution and by-laws.

It would be well to adopt the constitution and by-laws as suggested in this booklet, unless there is a good reason for amending them. After the motion for the adoption of the constitution and by-laws is seconded, the chairman shall ask for amendments or other changes. If any are received, the constitution and by-laws shall be voted upon, clause by clause, such changes being made as meet with the approval of the meeting. When no further amendments are forthcoming, the by-laws as amended shall be passed as a whole. When no amendments are presented, the original motion shall be voted upon.

It shall next be in order to have those present and who join the Club sign the constitution and by-laws, which signing makes them chartered members. The members shall then proceed with the business arising out of the constitution and by-laws:

1. Election of president, vice-president, secretary-treasurer and executive committee.

2. Decide upon date and place of next meeting.

3. Decide upon a system of holding the meetings: Frequency; shall they be monthly, bi-monthly or otherwise? Shall they continue throughout the year? The holding of meetings once or twice a month from October to April inclusive, and a certain day of the week, say, the second and fourth Tuesday of the month, or whatever intervals would best suit the members, is advised. It would be well to always hold the meetings in the one place, in some central location, if this is possible; but if such arrangement is not convenient, some other method must be adopted, such as holding the meetings in the different halls or school-houses in the section, or from house to house among the farmers.

4.—(*a*) Programme: Subject, speakers and persons to lead in the discussions for the next meeting.

(*b*) Arrangements for subsequent meetings, so far as possible.

Sample of Record in Minute Book.

Place........................
Date.........................

At a meeting of the farmers and others interested in Agriculture, held in (*name of hall and place*) at (*hour of meeting*) on the (*date*) day of (*month and year*), the organization of a Farmers' Club was considered.

There were .... persons present. Mr. .... was elected chairman and Mr. .... secretary of the meeting. The objects of the meeting were placed before those present by .... Moved by ...., seconded by ...., that the constitution and by-laws as given in the Farmers' Institute Club Booklet of 1911, "be adopted," or "were adopted with the changes indicated in the following minutes."

The following officers were elected:..................................

....

Immediately following this such other minutes as are thought necessary may be made,

Copy of constitution and by-laws should be pasted in the minute book, and any changes or additions decided upon indicated.

Duties of Officers.

President.—It is the duty of the president to preside at all meetings, to announce business, to preserve order, to put motions to vote, to announce results, and also to see that at the meetings of the Club parliamentary usage be observed, and to generally supervise the work of the Club. The president shall not make or second motions while in the chair. When a motion is made relating to the chair, the mover or seconder should put the motion to vote. The chairman shall decide all points of order, subject to appeal. He shall endeavor to make the Club as great a success and of as much benefit to the people as possible.

Vice-President.—It is the duty of the vice-president to preside in the absence of the president; in the absence of the president and vice-president a chairman shall be elected by the meeting. If the president leaves the locality, it shall be the duty of the vice-president to look after the duties which fall upon the president.

Secretary-Treasurer.—It shall be the duty of this officer to keep such a record of the proceedings of the meetings as will enable any intelligent person to understand fully the nature and doings of the meetings. He should record in the minutes all motions, whether carried or lost. He shall record the programmes of the meetings fully, especially when they have proven of particular interest, and should, if possible, obtain from the speakers copies of their addresses for file.

It shall also be the duty of the secretary-treasurer to read minutes, correspondence, etc., when they are called for, to call the roll, to notify committees of their appointment and the business referred to them. He shall collect all the moneys due the society, and shall keep accurate account of all receipts and expenditures and report the same to the Club. He should pay out money, except for ordinary expenses, only by order of the executive, having such signed by the president. Receipts should be secured for all payments of one dollar or more. The secretary of the Club shall be required to report, upon forms to be supplied, the attendance, speakers, etc., to the District Representative or the Superintendent of Farmers' Institutes within two weeks after a meeting has been held. It shall also be the duty of this officer to do all correspondence of the society.

A full list of members should be sent to the office of the Superintendent of Farmers' Institutes immediately after the election of officers and the payment of fees for the current year. New members or renewals should be reported at least once a month throughout the year. Copies of publications issued by the Provincial Department of Agriculture will be sent to club members as long as the supply lasts. Institute members will have preference over club members in distribution of literature.

The records may be kept in an ordinary blank minute book. A portion of the book should be devoted to each of the following: (*a*) Minutes of regular and executive meetings; (*b*) Cash account; (*c*) List of members.

THE EXECUTIVE shall have power to deal with all matters of business in connection with the Club, and shall be held responsible for carrying into effect the plans of work decided upon at the regular meetings of the club, and by the Board of Directors, and shall arrange the details of the same.

THE BOARD OF DIRECTORS shall have general charge of the affairs of the Club and give such directions to the executive and committees as are in accord with the wishes of the membership in general.

SPECIAL COMMITTEES. Each committee shall perform the duties assigned it, and the chairman shall report to the Executive, Board of Directors, or at a regular meeting, when called upon to do so by the president. Each committee shall elect its chairman. It is well to have one of the executive on each committee.

MEETINGS.

It is desirable to hold meetings at least once a month; and where there are a number of members prepared to give addresses and papers, it might be that good meetings could be held as often as once every two weeks. Experience has shown, however, that it is much better to hold four or five good meetings during the first year of the Institute Club rather than to hold a greater number and have them of less interest and profit. If you give the farmers something of value and deep interest once a month, you are more likely to secure and maintain their interest and co-operation, than by giving them inferior service every week or two weeks.

The Rules and Regulations governing Farmers' Institutes state that "party politics in any form must be avoided by the speakers." "The object of each local Institute shall be the dissemination of agricultural knowledge in its district, and the development of local talent." When a representative of the Department is in attendance, discussions or addresses of a racial, sectarian or political nature must be avoided, and we would advise the officers of local clubs not to introduce questions of this nature at their regular meetings. There are plenty of questions bearing directly upon their calling which can be discussed without entering the political or religious field.

SPECIAL INDUCEMENTS TO FARMERS' INSTITUTE CLUBS. Those Clubs which hold at least four meetings a year and report the same to the Superintendent of Institutes, or to the District Representative for the county, and which have at least twenty-five members, twelve of whom also belong to the riding Farmers' Institute, will be entitled to a speaker furnished by the Department of Agriculture for a special meeting once a year, free of cost to the Club, except for transportation to and from the nearest railway station, and entertainment while at the place of meeting. The Department will make arrangements direct with the secretaries of the Clubs concerned for dates, speakers, and subjects. The Clubs will no doubt be able to get speakers through the Farmers' Institute for the riding for a meeting to be included in the regular series of winter Institute meetings.

It sometimes occurs that the Department has a special publication of value to farmers, but not in sufficient numbers to send to all members of the Farmers' Institute. The Clubs will be given preference in the distribution of such literature. If a Club is doing valuable work for the farmers of the surrounding district, the Department may be depended upon to give liberal assistance by way of sending literature and advice from time to time.

Special Work for Farmers' Institute Clubs.

In addition to the general directions given under "Objects" as to the work to be undertaken by the Clubs, we beg to maks some more specific recommendations. The nature of the work to be undertaken in each locality must, of course, depend upon the lines of agriculture which are followed successfully in the locality, or which could likely be introduced with success. If dairying is one of the chief sources of revenue to the farmers, then it would be well to have a Dairy Committee. This Committee could well inquire as to whom in the vicinity were making regular tests of their cows, and make arrangements with them to present the results of their work to the Club. It would also be within the province of this committee to make some arrangement by which sires produced from ancestors of well known dairy qualities could be secured for the neighborhood. The proper care and handling of milk, and the sanitary surroundings of stables, milkhouses, factories and creameries should receive the attention of the organization through this committee.

Special work with reference to the breeding and care of horses, cattle, sheep, or bacon hogs should, of course, receive consideration, where any of these classes of animals are produced in anything like large quantities.

Have the Committee on Experiments canvass the members of the Club as to the experimental work which each will be prepared to take up. In this way unnecessary duplicating will be avoided, and a wider range of work undertaken. The efforts of the individual will thus be made of benefit to the whole community. The Club could with profit have one or more of its members conduct each of the experiments sent out by the Experimental Union from year to year, and the reports of those experiments would form a valuable basis for addresses and discussions the following season.

The report of the Experimental Union could well form the basis of two or three meetings. A discussion of the recommended varieties of grains, roots, corn, etc., in their application to local conditions, would be a profitable lesson for all concerned. Almost any week's issue of any one of our leading agricultural papers contains articles which could be used as a basis for addresses and discussions. The reports and bulletins sent out by the Department of Agriculture should form a basis for study and discussion.

It is not that the farmers are specially in need of additional publications along agricultural lines, but that they should put into practice the information already at hand, and apply it to local conditions.

Co-operation. One of the most crying needs in agriculture is the extension of co-operation among the farmers, not only along fruit lines, but also in the production and sale of grain, stock, and other farm produce. There were over forty Co-operative Fruit Associations carrying on active operations in the packing and sale of fruits throughout the past season, and the increased returns to the fruit growers concerned can be reckoned by the thousands of dollars.

In one locality in Western Ontario the farmers within a comparatively limited area have from an initial investment of $14,000.00 reaped a benefit of $120,000.00 in five years' time, in the sale of grain alone. Surely statements like these will induce the farmers in many localities in the Province to undertake such lines of co-operation as can be made effective in their respective districts. A better quality and greater quantity of whatever is produced should be the aim of the farmers, and one of the greatest factors in bringing this about will be an intelligent co-operation. Some clubs have purchased staple goods, such as salt, binder-twine, grass seed, machine oil, feeds, fertilizers, etc., for their members. They have also secured pure bred stock for use in the locality.

If it is decided to make purchases through the Club, we would advise that the local merchants be asked to give quotations, and unless the goods desired can be purchased at a considerably lower rate elsewhere, we would advise that they be secured locally. You cannot get along without the business men of the town and village, and provided you can get the quality and class of goods desired it is well to give them the preference.

Farmers' Record. At least one Club keeps a record from month to month of the produce for sale by its members. Lists of stock and general farm produce for sale are furnished, and as an outgrowth of this there is often a desirable interchange of stock and produce. The listing of goods also enables the farmers of the locality to sell to outsiders in large quantities at increased prices.

Interchange of Papers. Much benefit would be derived by the Clubs were they to arrange for the interchange of papers prepared by the different Clubs of the district. The Department would be glad to get copies of what are considered the best papers of general interest, and arrange for the distribution of the same to all Clubs.

It is well for neighboring Clubs to arrange for an interchange of speakers. If two or three men in a Club are asked to prepare a programme upon some special line of work to be given not only to their own Club, but to some of the adjoining Clubs, greater care will be taken in the preparation of the same, and, the discussion of the methods recommended should result in the accumulation of valuable information as to practices best suited to the conditions met with.

Improvement of country roads, rural telephones and many other subjects of general interest might well be dealt with by the Clubs.

Wherever there is a district representative of the Department of Agriculture, the farmers may depend upon him to assist in the Club work, for there is no better medium through which he can do effective work than through local farmers' organizations.

Do not, in planning the work of the Club, forget to make some provision whereby the boys will be interested and benefited. If the father exhibits an anxiety and willingness that the boy should be given a voice in planning the work of the farm, and also a direct interest in some of the operations, such as testing varieties of grain, roots, corn or fruits, the testing of cows, or the feeding of stock, then the boy is sure to take a keen interest in his home life and also to render more valuable assistance in doing that work which the boy can so well perform upon any well regulated farm.

What we want more and more in agriculture, is that each individual take a pride and interest in the work of the farm. There is plenty of scope in agricultural operations to give each boy some definite experiment or other line of work as his own, and for which he will be held directly responsible. It is to be hoped that before many years have passed the teachers in the Public Schools of the Province will be able to make the application of agricultural science and practice to the work of the school-room, much more beneficial and instructive than has been the case in the past. The Clubs can do much to hasten the day when such will be the case.

We should strongly advise that the Farmers' Club and the local branch of the Women's Institute co-operate in social gatherings occasionally. In fact, it might be well for the two organizations to have union meetings every two or three months. At these meetings more or less attention could be given to literary studies, music, and debates. They should co-operate in getting up entertainments or suppers, with a view to raising funds to carry on the work.

Additional Suggestions.

(1) Appoint speakers some weeks ahead, if possible, and have subjects in keeping with the season of the year. Have a definite plan of work and programme for several meetings during the winter months. This will give those who are to take part in the programme plenty of time for preparation.

(2) Encourage the young men to take an active part in the meetings. Have them lead in the discussions, or give results of operations on the farm. A limited amount of entertainment should be furnished.

(3) Have a fifteen minute recess during the meeting for social intercourse. It gives the officers an opportunity to arrange the programme for the next meeting. Views will be expressed by some at this time who cannot be induced to speak in open meeting.

(4) Open your meetings at the time advertised and avoid late meetings. Devote the first half-hour, if thought well, to a general discussion or question drawer.

(5) Whenever a good address is delivered send a copy to the Superintendent. Contributions of this nature are always acceptable and appreciated.

(6) Outline some useful experiments, and appoint members of your Club to conduct them. Discuss the results of the experiments at your winter meetings.

(7) Conduct a competition in the growing of good seed. Procure an expert to judge the same, and give a talk at a special meeting.

(8) Have practical demonstrations whenever possible. Stock judging could be introduced to advantage.

(9) Be instrumental in getting Telephones, Rural Mail Delivery, Good Roads, Pure-bred Stock, etc.

(10) Put up a Bulletin Board in a central place. It can be used for advertising anything the Club members may wish to sell or buy. It may also be used to make announcements regarding meetings.

(11) Assist in making a success of the Institute meetings and short courses in stock and seed judging to be held in the district from time to time.

(12) A *Question Drawer is* valuable as a means of getting members to take part in the meetings who would not do so otherwise.

SUGGESTED TOPICS FOR FARMERS' INSTITUTE CLUB MEETINGS.

The Soil.

1. Kind of soil best adapted to certain crops.
2. Summer and fall cultivation of the soil.
3. Value of fall plowing; the effect upon the soil and its effect upon spring work.
4. Plows and plowing; the objects sought for in plowing.
5. Value of drainage.
6. How to control soil moisture.
7. Crop rotation and its effect upon the soil.

Cereals.

1. Seed selection.
2. Pure seed.
3. Preparation of the seed bed prior to sowing grain.
4. What grains should we grow in the district.
5. Diseases effecting cereals and their treatment.
6. Corn planting, cultivation and harvesting.

Weeds.

1. The Seed Control Act.
2. The eradication of noxious weeds.
3. Weeds and their control.
4. The most dreaded weeds of the district and methods of combating same.

Clovers.

1. The varieties of clovers best suited to the conditions.
2. The place of clovers in a rotation.
3. The effect of clover upon the soil.
4. The value of clover hay as a food for stock.
5. Clover hay making.
6. How to grow clover seed.
7. Alfalfa growing and its food value.

Roots.

1. The preparations of the soil for a root crop.
2. Cultivation and harvesting of roots.
3. Turnips *versus* mangolds as a food for stock.
4. The value of roots in a rotation.

Orchard Fruit.

1. The varieties of fruits best suited to our markets and climatic conditions.
2. The handling and planting of nursery stock.
3. The cultivation, fertilization, pruning, and spraying of our orchards.
4. Cover crops and their value in orchards.
5. The packing, housing and marketing of our fruits.
6. Fungus diseases and insect pests.

Small Fruits.

1. Strawberry culture.
2. Varieties of strawberries best suited to our markets.
3. The planting and cultivation of our bush fruits.
4. The diseases and treatment of small fruits.
5. Marketing.

Vegetables.

1. The value of improved varieties.
2. How to grow vegetables to the greatest perfection.
3. Diseases of vegetables and their treatment.
4. Housing and marketing.
5. Early vegetables.

Flowers.

1. Flowers and their place in the home.
2. How to make flower beds and borders attractive.
3. How to select flowers in order to have flowering plants throughout the summer season.

Apiculture.

1. Keeping bees for profit.
2. Bees, their life history and methods of hiving.
3. Care of honey and its value as a food.
4. The value of bees as an agency in cross fertilization.

Poultry.

1. Poultry for profit.
2. The importance of choosing a breed and keeping it pure.
3. Egg production.
4. Poultry feeding.
5. The housing of poultry.
6. Incubators.

Dairying.

1. Care of milk on the farm.
2. Milk testing as a means of improving the herd.
3. The cheese industry, obtaining uniformity of product.
4. Condition of creamery or factory; its location, sanitation and the quality of the product.
5. The home dairy.
6. The cleanliness of the stable and its effect upon the manufactured product.
7. Production of milk and cream for city trade.

Hogs.

1. The breeds of hogs most suited to our markets and conditions.
2. Care, feeding and breeding of hogs.
3. Care of the brood sow before and after farrowing.
4. The feeding of hogs from the time of weaning until ready for market.
5. A study of the hog market.

Horses.

1. Horse breeding.
2. Feeding horses when at work or at rest.
3. The rearing and management of the young horse,
4. How to know and detect blemishes and unsoundness in horses.
5. The best type of horse for the farmer to produce.
6. The care of mare and colt.
7. Fattening horses for sale.

Beef Cattle.

1. The breeding, feeding and management of beef cattle.
2. Profit in beef raising.
3. Importance of a sire as a means of improving the herd.

4. Raising a beef calf to maturity.
5. Feeding stockers.
6. The dual purpose cow.

Dairy Cattle.

1. The dairy cow.
2. The importance of a well-bred sire from a good milking strain.
3. Care of the cow and her calf.
4. Summer and winter feeding of dairy cows.
5. The importance of fresh air, sunlight, pure water and a plentiful supply of nutritious food in the building up of a profitable dairy herd.

Sheep.

1. The sheep industry of Ontario.
2. Growing lambs for profit.
3. Sheep feeding.
4. How to care for ewes during the lambing season.
5. Sheep diseases and their treatment.

Miscellaneous.

1. Ice cutting and storage.
2. Value of ice on the farm.
3. Farm water supply.
4. Improvements of roads.
5. The importance of timely work on the farm.
6. Care of farm machinery.
7. Cement buildings on the farm.
8. Planting evergreen trees, their value as a windbreak and their beauty.
9. Value of producing a large quantity of high grade farm products in the locality.
10. Value of trees, ornamental and forest.
11. Co-operation among farmers.
12. Insurance.
13. Farm labor: housing, work by the year, etc.

Debates.

1. Resolved that mixed farming is more profitable than special farming.
2. Resolved that winter dairying is more profitable than summer dairying.
3. Resolved that city life is preferable to country life.
4. Resolved that it is more profitable to have cows freshen in fall than in winter.
5. Resolved that the breeding of heavy horses is more profitable to the farmer than that of light horses.

COW TESTING, THE INDICATION OF REAL DAIRYING.

Chas. F. Whitley, Dairy Division, Ottawa.

What Cow Testing Is.

Cow testing is a simple, inexpensive, reliable, and interesting method of determining the real dairy power and ability of each cow in the herd, ability to convert feed into milk and fat at a good profit.

The object of cow testing is to prove to the dairyman through keeping simple records which cows are paying and which are not, so that he may know which to beef and which to retain in building up a profitable herd.

A knowledge of the total production of the herd for a month, or even for the full season, is no guide to the information needed by the real dairyman as to the capacity of the individual cow. That only gives a knowledge of what is the average yield of the herd. An average, only, is likely to mislead, for records prove that one's judgment is apt to be considerably astray regarding some really promising and deserving cows, while others exist only to deceive.

Why should not each cow you own bring in a good $20 or $30 clear profit? Many cows do.

The Value of Records.

A milk record to be of value to the average dairyman should be complete for the full period of lactation; a partial record is very unsatisfactory, because knowledge is wanted of the total production of each cow separately, and less than ten minutes a month spent in weighing and sampling will give definite information regarding each cow's actual yield of milk and fat. At a recent sale, the cows with testing association records averaged $11 more than the others.

If the records cover a period of two or three years, they are more valuable still. They show if each cow is producing 300 pounds of fat a year, and whether some individuals are yielding 1,300 pounds in three years. Then such a cow and her heifers are known to be valuable, either to keep or buy.

Farming has become a specialized business. The business man knows facts concerning his cost production and profit, the dairyman cannot afford to guess. As he multiplies his output and his profit, he cuts down the "overhead" expenses, thus working more economically.

Dairy records constitute a valuable "first aid" to injured farmers whose dairy vigour has been dissipated in handling unprofitable cows. Your time is too valuable to waste on poor cows. Records mean less work on the farm, because your selected cows are labour-saving machines. Cow testing is one link in the chain of golden opportunities which increase with every clock tick.

Good cows make money, poor cows waste it; they also waste feed and stable room, time and temper. Get the dairy dollars now lost in handling poor cows, by selecting good cows. Make double your income and eight times the present profit inside four years, hewing out your fortune with good tools, your own well-tempered dairy ideas, and your good cows. Records post up the effect of storms, whether cold sleet or hot temper. Lack of care and kindness is a fine of dollars and cents.

A record is an index of the type of animal kept and of the character of her keeper. The individual cow in whom is being fashioned the dairy ideal of the enthusiastic farmer-artist, is worth study. And the man is humanized, made the better man by contact with the embodiment of patient unselfishness exemplified in the exquisite types of your profitable cows.

Cow testing is the adjunct of rapid and rational herd improvement through intelligent feeding and wise breeding. Records indicate how much of what particular feed-stuff can be profitably given to a cow, while they also designate from which cows the best stock can likely be raised.

Co-operative Breeding Associations.

Records point out the advisability of making a district known for its particular breed, it is a reasonable and a paying proposition for both buyer and breeder when a locality is advertised as the home of many good specimens of one breed. Buyers don't want to travel miles and miles in picking up a carload, but they will flock to one place to compete for good cows. Much room exists for this, as well as for co-operation amongst members of cow testing associations for procuring the best possible pure-bred sires of dairy breeds. This simple plan of immense mutual benefit can easily be arranged by fifteen or twenty members clubbing together for purchase and exchange, so that with three sires and herds divided in three groups, a first class sire may be available for three periods of two years each. Co-operation aided in building our cheese factories and creameries, it may reasonably be extended to this community breeding and is well "worth while," for herds with the good sire will average an extra 2,000 pounds of milk per cow, and the net cost of milk will be rapidly reduced as much as from 83 cents to 66 cents per 100 pounds.

A Cow's Real Value.

The measure of a dairy cow's real value is the net profit she makes above the cost of feed. In dairying the unfailing law of retribution is in active operation. The liberal soul of the liberal feeder waxes fat, and his pocket-book does not shrink and flatten if his cows have the opportunity of satisfying their dairy capacity on suitable feed.

Nowadays we must look for large profits from each cow. The old days of a dual purpose cow producing only 3,000 pounds of milk selling for $1 per hundred, on feed valued at $30, have gone for ever—let us devoutly hope. Large profits are not only desirable but easily obtained, according to the experience of members of our cow testing associations. Men who credit each cow with her full production and debit her with the feed consumed find that a rapid increase in the profit takes place as this dual purpose object is attained—the poor cows weeded out and the good cows further improved.

A business man looks for reasonable return on his investment. Do you make a good 5 per cent. or 8 per cent. on your capital sunk in land, buildings, horses, implements, and cows? Is the profit being heaped up by each individual in the herd, or do two or three out of your twenty give you no return? You should be in a position to know definitely at your annual stock-taking, for you are the one to benefit by any and every step in the direction of herd improvement.

So, may I ask further, what does your milk or butter fat cost? You know its selling price, but, as a wise manufacturer, does your price book tell you at what rate per pound or per 100 each cow makes it? There lies the secret of success. The whole successful structure of dairying rests on this foundation stone of *knowledge of individual performance*. We find plenty of cows whose milk costs $1.25 and $1.35 per 100 pounds and whose butter fat costs 25 cents and 35 cents per pound, but no dairyman to-day can afford to keep that type with milk at present prices. Such cows can only be handled by our wealthiest men. Dairy records light the signal fires of intelligent action in selection of the type that will produce fat at 17 cents or less and milk at 60 cents or less.

By this means, we assure ourselves that there is satisfactory return for the investment of all the labour, day in and day out, bestowed on the cows kept. One moment, do you keep them, or do they keep you? Do your work for them, or do they work for you? It is high time each factory patron distinctly understood the difference.

POSITIVE GAINS.

Those patrons who grasped this situation three or four years ago have every reason to be thankful. They write to me enthusiastically of the tremendous change in many ways that cow testing has brought. It has meant far more comfort in the home for wife and children, because of the largely increased income. It has meant a new interest in farm work, an appreciation of the dignity of labour and of adequate payment for it. There has been a trading of every golden minute in the purse of time for improvement through wise dairy thinking of high ideals. Such men are not limited in their notions, they progress, becoming unlimited farmers, farming in their adventures in contentment with the plough of perennial admiration and inquisitiveness all that is best in the world of men and nature. They harrow the lean hard places of the mind with the sharp tooth of progressive dairy thought. As practical men, they, in common with the factory owner, school teacher, merchant, and banker have welcomed cow testing, because it means no loss, but positive gain. Note the large increase tabled in these six herds:

INCREASED YIELDS FROM COW TESTING.

Ontario Herds at—	No. of Cows.	Now giving Lbs. Milk.	Used to give Lbs. Milk.	Increase per Cow.	
				Lbs. Milk.	Per cent.
Peterboro	20	8,978	6,709	2,269	33
Prescott	28	6,000	3,794	2,206	50
Cassel	14	8,000	5,000	3,000	60
Woodstock	11	10,500	5,500	5,000	90
Milton	23	8,200	4,000	4,200	100
Woodstock	20	9,144	4,500	4,644	103

COW TESTING CERTAINLY "PAYS."

Cow testing is intensely practical. It has been tried and tested in the crucible of actual farm practice. Records show the futility of keeping ten cows to make as much profit as one should; they blazon the white way of endeavour, and crown with success the labours of the men who are wise enough to profit by what the records suggest. *Cow testing is one of the best paying propositions ever placed before the dairy farmer.*

No government can legislate good crops or good cows, but this matter of cow testing is most heartily recommended to you, on its merits of simplicity, immediate value and permanency. To any man keeping twenty cows it means an extra income of $400 to $500 per year, besides the intense satisfaction of knowing that none but profitable cows are kept.

DAIRYING AND THE DAIRY COW.

R. S. STEVENSON, ANCASTER, ONT.

The increasing interest shown in the dairy business in Ontario is striking evidence of the value of the dairy cow as a money-maker for the man who will use intelligence and judgment in the business. There is no branch of farming in which the returns to the farmer for his labour are so certain. Are the dairymen, as a rule, getting the returns from their business that it is capable of giving them? I am quite sure they are not; and it is largely to be attributed to the fact that far too many unprofitable cows are being kept. The records of the cow testing associations show that the average cow of the country produces about four thousand pounds of milk in the year. One can figure out for himself how much profit there is in feeding and milking a cow say ten months for that amount of milk. I have never been able to feed my cows for less than thirty-five or forty dollars a year; so, with milk at one dollar per hundred, an average price, there is no profit in the cow that does not give a good deal more than four thousand pounds of milk. Now, if the four thousand pound cow is the average cow of the country, there must be a lot of cows that do not give even four thousand pounds. Some one has those cows: they are in existence somewhere; and, as a matter of fact, there are very few men who are dairying to any extent, but have more or less of these unprofitable cows in their herds. We see springing up all over the country fine modern barns that have cost their owners a great deal of money; but, on visiting these barns, what do we often find? In a herd of fifteen or twenty cows you can pick out a dozen or more that could not possibly be profitable cows; and yet these cows are allowed to occupy valuable stalls in this fine modern barn. A man had better have a house with a tenant in it that did not pay him any rent, for he does not have to board the tenant, but he does have to board the cow that neither pays rent for her stable, nor does she give a sufficient return in milk to pay for her keep, to say nothing of the time and labour expended in milking and caring for her. Now there is only one remedy for this sort of thing, and that is for farmers to start weighing the milk of every cow and have it tested, thus finding out which are his boarders. He should get rid of the unprofitable cows at the earliest possible moment, not by selling them to some one else for dairy cows, but by sending them to the butcher, for there is only one profit to be got out of these worthless dairy cows, and that is when they yield up their lives to the butcher's block, and the sooner they do that the better for everyone.

The surest way to accumulate a profitable dairy herd is for the farmer to breed his own cows; it is a difficult matter to buy many good ones, as every one knows who has tried it, but anyone can breed up a herd if he goes about it in the right way and with a determination to succeed. There are certain principles, however, to which he will have to adhere, briefly stated as follows: First, commence weighing the milk and weed out the boarders; next get a pure bred bull of one of our dairy breeds and mate with his best cows. Then select the most vigorous heifer calves and raise them to become strong heifers that can handle large quantities of cheap coarse feeds, like ensilage, etc. One can thus in a few years grade up a herd of cows that will not only be a source of great profit to him, but will also be a source of pleasure, as he will have something to be proud of, and he will take a certain amount of pleasure in attending to them. He will also take better care of them, feed them better, and consequently increase their production of milk. The man who does this will be a better citizen all round, as he begins to realize some of the profits that can be got out of keeping dairy cows when conducted along business lines.

As the basis of all the improvement that can be made in the herd is the bull, too much care cannot be taken in his selection. It is a more difficult matter to choose a bull to grade up a herd of dairy cows from than to select one for the purpose of breeding beef cattle. In the latter case, the chief thing is the right conformation, but the giving of milk is something that is controlled largely by the inside of the animal, and you cannot tell much about this from the outward appearance. By selecting a bull from outward appearances alone one would be very likely to be disappointed in the offspring when he came to milk them. We must have a guarantee in the breeding of our dairy bull to know that he comes from a line of producing cows, especially on the female side of his ancestry, and the closer up they are to him the better. Especially should he have a good mother, not only a good producer, but a cow with a perfect udder. We hear of a great many cows going wrong in the udder by losing quarters, etc. This is a thing that is hereditary, and if you breed from a bull whose dam was defective in the udder the probabilities are a number of that bull's daughters will go wrong in the udder, which is a fatal defect as far as a dairy cow is concerned; and we can get plenty of these defects without breeding them. Anything in the shape of an injury that came from the outside would of course not signify, as it would not be hereditary, but it is the defect that comes from the inside and is constitutional that we should guard against in the selection of a bull for the improvement of our dairy herd. The bull to be placed at the head of a grade herd should, if possible, have richer producing blood than one at the head of a herd of pure bred cows, as he has a harder battle to maintain his good qualities. He represents a larger proportion of the value of the herd. Only his heifers will be of value, and all bull calves should be sacrificed. No amount of good breeding and expensive feeding will build up the herd to a uniform degree of excellence, unless the calves are selected with care. Not every heifer calf should be kept; only those that are well born have any chance of becoming good cows. The vigor or lack of vigor at birth will generally follow them through life. After the heifers come into milk another selection must be made, as they will not all come up to the standard. However, I would not condemn a heifer the first milking period. I would give her a second chance, as they are sometimes a little slow in developing. It is always advisable to procure an old tried bull if possible, as when you get him you are getting a certainty. His progeny is an evidence of his value; you know he is a producer of good cows; but, with the young untried bull, there is a certain amount of chance. Bulls with good breeding do not always prove to be good stock-getters. The old bull of proven qualities can often be bought at a low price from some farmer who has finished with him. Unfortunately, a good many of our best bulls have been sold for beef before we knew how good they were. Another very important point in the grading up of a dairy herd is for a man to choose one breed and then stick to it. Never cross-breed if you wish to accomplish something; as a matter of fact, the indiscriminate crossing of our different breeds of live stock has been the curse of the live stock industry of the whole Dominion of Canada. The average farmer thinks that by crossing backwards and forwards he can combine the good qualities of the different breeds in one individual. It is needless to say that this method of breeding has never resulted in anything but disaster.

FEEDS.

Prof. R. Harcourt, Guelph.

The food supplied animals has a great variety of functions to perform. In the growing animal the food must furnish materials for building up muscle, fat, bone, cartilaginous material, hair, hoof, etc. A part of the food also must be burned to provide heat to keep the body warm, to furnish energy to carry on such internal work as mastication, digestion, the pumping of blood through the system, etc., etc., and energy to move about. In the older animal, especially during fattening, the demands on the food are less varied. It is true that it must furnish materials to repair tissues that are being continually broken down, and furnish energy for all work, internal and external, but one of its chief functions is to produce fat in the body. The food of the cow giving milk must contain an abundant supply of those food constituents which are found in milk, and the working animal those materials which furnish energy to do work. Thus, it will be seen that in the different classes of animals the food has quite different functions to perform. Let us briefly study the different constituents of foods and notice the part they have to play in supplying the materials required for these different purposes.

In the first place, all plants, which form such a large part of animal foods, contain at least four constituents, namely, protein, fat, carbohydrates and ash. They will naturally vary in the amount of these different constituents, but no plant can make growth without these materials. Water is, of course, always present in addition to the four which have been named, and will be present in quite varying quantities.

The protein is the constituent from which all the muscle or lean meat of the animal is formed. A common example of this constituent is the gluten that we find in flour; or, the white of an egg is practically pure albumin. This protein substance, besides being the source of muscle, is also used in the formation of the nitrogenous part of the bone, the cartilaginous materials, hair, hoof, etc., and the casein and albumin of milk; in fact, it is the only substance in the food from which the animal can construct these materials. But protein may also be used as a source of fat and may be burned in the body to supply heat and energy. The fat in the food cannot be converted into muscle or lean meat, or any of the various nitrogenous substances formed from proteins, but it can be re-formed into the fat of the body, or may be burned to furnish heat and energy.

The carbohydrates may be divided into two classes: First, that which is known as the soluble carbohydrates, or the nitrogen free extract, and which consists largely of sugars, starches, and some of the softer forms of the cellulose, and probably many other less known bodies closely related to these; and, second, the crude fibre which represents the harder, more indigestible fibrous parts of the plant. Ruminants digest a fair amount of this crude fibre, but it is not at all well digested by the non-ruminant animals. The carbohydrate bodies may, like the fat, be converted into fat in the animal body, or may be burned for the production of heat and energy, but for this purpose they are not so efficient as the fats. As a heat producer the fats are 2.3 times more efficient than the carbohydrates, but the carbohydrates are the cheaper material, in fact they are the cheapest heat and fat producers among the constituents of our food. A large amount of crude fibre, however, always detracts from the value of the food, because it is not only poorly digested but a large amount of energy is expended in the work of digestion, and this must be done at the expense of the portion which is digested. As an illustration of this, we cite the fact that a horse will digest a certain amount of crude fibre, for instance of oat straw, but experiments have demonstrated that the amount of energy expended in doing the work of digestion was greater than that which would be got by the animal from the portion which was digested, and thus the animal was no better off except that enough heat had been given off during the process of the work to keep the body warm. We will thus see that protein is the only constituent of foods that the animal can convert into the lean meat of the body. It is, consequently, especially valuable, and when we take into consideration the fact that it is the most expensive constituent of the food, we see why good economical feeding requires some protein in the food, and why the amount should be limited to what is actually required. One of the principles of good feeding is built on this fact, namely, that protein should be fed in such quantities that it will do the work which it alone can do, and leave the production of fat, heat, and energy to the fats and carbohydrates, which are especially valuable for that purpose. This is the principle which underlies all balanced rations. If more protein is fed than is required for the production of flesh it will be burned in the body and will have no greater value than the same weight of carbohydrates; consequently, economy in feeding would look to the proper balancing of the ration so that protein may be fed in such quantities that it will not be used for purposes of heat production. In the feeding of a young and growing animal it is necessary to have a large amount of protein, because the animal is growing and building up a structure which is rich in the nitrogenous constituents. Milk, that forms the food of the young calf, is rich in protein and ash, and is particularly well suited for feeding the young animal, but as the animal grows older and takes more exercise other foods may be added that are richer in the carbohydrate materials, because these substances are a cheaper source of energy to the animal. The young animal is also building up bone and using more of the ash materials than the older animal. It is for this, and other reasons that might be mentioned, that the young animal makes so much larger increase in weight for the food fed than the more mature animal. In fattening the matured animal there is only a small amount of the protein materials actually converted into body tissue, and very little of the ash; consequently, the gain in weight must be derived from the carbohydrates and fat. These we have found are the source of the animal fat, and, therefore, of the increase in weight of the animal. Naturally, then, we would assume that the food of the fattening animal should be rich in these two constituents. This is undoubtedly true, but as there are always some tissues of the body breaking down, some protein must be fed to rebuild these, but it is not necessary that they form so large a part of the ration as in feeding young animals or cows giving milk.

In feeding a cow that is giving milk we must keep in mind that the milk is rich in protein, and that the only source of the protein is that which is supplied in the food. Consequently, the cow's food must be rich in this constituent, and liberal feeding is absolutely essential if we are to get good results. Energy to do work is got from the oxidation, or slow burning of the materials of the food, or, if these are not present in sufficient quantities, from the oxidation of the fat of the body. A certain amount of protein is essential, but where animals are doing slow work, at a walk for instance, carbohydrates may be fed abundantly, and less protein is required than when the animal is doing the same work at a faster pace. It has, however, been fairly well demonstrated that where vim or spirit is desired in the animal a fair amount of protein must be supplied in the food.

With the exception of the legumes, the foods grown on the farm are not characterized by high protein content. Many of them contain but a small amount of this constituent and a large amount of the coarse, comparatively valueless, fibre. These form the cheap foods and are excellent when simply maintenance is required, and are valuable as part of the ration in any case. Others, again, as the grains, are rich in starch. The legumes, however, contain comparatively large quantities of the valuable protein. As has been pointed out, protein is particularly valuable for the dairyman, as the cows he is feeding must have a large proportion of this constituent in their food. In growing legumes he is producing the cheapest form of this substance, and this is why the clovers and alfalfa should be extensively cultivated. In the following table the per cent. of digestible protein, carbohydrates and fat in a number of our common feeds is given, and it serves to illustrate the wide differences in the food value of these materials:

Name of Feed.	Dry Matter in 100 lbs.	Digestible Nutrients in 100 pounds.		
		Protein.	Carbo-hydrates.	Crude Fat.
Wheat	89.5	10.2	69.2	1.7
Oats	89.0	9.2	47.3	4.2
Barley	89.1	8.7	65.6	1.6
Corn	89.1	7.9	66.7	4.3
Peas	89.5	16.8	51.8	0.7
Alfalfa hay	91.6	11.0	39.6	1.2
Clover hay	84.7	6.8	35.8	1.7
Timothy hay	86.8	2.8	43.4	1.4
Pasture Grasses	20.0	2.5	10.2	0.5
Corn silage	20.9	0.9	11.3	0.7
Corn fodder	57.8	2.5	34.6	1.2
Mangels	8.9	0.9	0.05	8.0
Swedes	8.7	0.9	0.1	7.7
Wheat straw	90.4	0.4	36.3	0.4
Oat straw	90.8	1.2	38.6	0.8
Cotton seed meal	91.8	37.2	16.9	12.2
Linseed meal	89.9	28.2	40.1	2.8
Gluten meal	91.8	25.8	43.3	11.0
Brewers' grains, wet	24.3	3.9	9.3	1.4
" " dried	91.8	15.7	36.3	5.1
Malt sprouts	89.8	18.6	37.1	1.7
Wheat bran	88.1	12.2	39.2	2.7
Wheat middlings	87.9	12.8	53.0	3.4
Oat dust	93.5	8.9	38.4	5.1
Oat hulls	90.6	1.3	40.1	0.6
Beet pulp	10.2	0.6	7.3	....

From the above it will be seen that alfalfa has as much, or more, digestible protein than any of the grains. It will also be seen why such concentrates as cottonseed meal, linseed meal and gluten meal are so valuable for the dairyman. His cows must have a large proportion of protein in order that they may have a chance to do their best. The concentrates are rich in protein, and, naturally, they are the materials he should buy to supplement the home-grown foods. For the same reason, it is evident that oat dust and oat hulls are too low in protein to be of any particular value to the dairyman. Again, it is evident that when legumes, and particularly alfalfa, form a large part of the roughage of the ration, the need for purchasing the expensive protein-bearing feeds is reduced.

THE USES AND APPLICATION OF COMMERCIAL FERTILIZERS.

By W. R. Reek, B.S.A.

When our soils were comparatively new and general grain and stock farming was in vogue everywhere, the need for artificial fertilizers was not great and few were used, but since systems of more intensive agriculture have been introduced, and especially among our fruit and vegetable growers, we have realized that money spent in their purchase, when applied intelligently, will bring very substantial returns. The production of a maximum crop upon every available acre is one of the most interesting agricultural problems, and more so since the labor question has become so very acute. The production of 40 bushels of wheat upon one acre is more profitable than 40 bushels upon one and one-half acres.

Many at first thought that they were a panacea for all ills, and disappointment followed in every case. Now, however, since an intelligent study of them has been made, we have discovered that their greatest usefulness is in conjunction with barnyard manure and the legumes.

The Principal Fertilizers.

Plants in their growth require a supply of several substances, but the three principal ingredients are nitrogen, phosphoric acid and potash. These must be present in normal quantities, in available form, to develop a healthy, profitable plant. They are, with the exception of lime, which is an indirect fertilizer, the only materials secured commercially.

Nitrogenous Fertilizers.

These are the most important. They are the most expensive to purchase. The sources are numerous. For general farming the use of the legumes with farmyard manure will generally prove sufficient. The purely nitrogenous manures are nitrate of soda, sulphate of ammonia and calcium cyanamide. Others, such as tankage and dried blood, generally contain varying amounts of other fertilizers.

Nitrate of soda is one of the most used, due to its availability to the plant. For this reason it is necessary to apply it at intervals, the first being just when the plants appear above ground, and the rest at intervals of from two to three weeks. It induces deep rooting, which is a great advantage, especially in dry seasons. It contains 15½ per cent. to 16 per cent. of nitrogen. If used too profusely on heavy clays or clay loams, it will cause them to become rather sticky and tenacious, with a tendency to bake easily. This can be overcome by using an acid phosphate in conjunction with the nitrate. Ammonia sulphate contains about 20 per cent. nitrogen and is a by-product from gas works. It is the great rival of sodium nitrate at the present time. The availability is not so great because it first has to undergo one chemical change in the soil before the plants can absorb it. It is not so apt to leach and is preferable in a wet season. Calcium cyanamide: This is purely a chemical product. It is a comparatively new fertilizer containing about 14 per cent to 22 per cent. of nitrogen, which is derived from the atmosphere by causing it to chemically combine with a calcium compound. The commercial form is a finely ground black powder.

PHOSPHATE FERTILIZERS.

These seem to have an important part to perform in connection with the formation of seed. Nitrogenous fertilizers have the tendency to produce growth and to delay maturity, but the phosphatic manures hasten the maturity, hence the necessity for correct amounts of these two substances. They stimulate root development to a marked degree and especially the throwing out of small fibrous roots; no doubt this accounts for the stimulation which is given to a young seedling when available phosphates are known to be present.

Superphosphate or acid phosphate is our most common one, containing 13 per cent. to 18 per cent. of available phosphoric acid. This is just the rock ground and treated with sulphuric acid to make it soluble in water, which causes it to be readily available to plants; no doubt its quick action accounts for its great popularity.

Basic slag or Thomas' phosphate is a by-product from the manufacture of steel. This form does not leach readily and can be applied at almost any date. It should always be very finely ground or it will be too long becoming changed to soluble forms.

Bone is another important source of phosphoric acid and is usually sold in the form of bone meal or bone flour and in the various forms of tankage from the meat-packing houses.

POTASH FERTILIZERS.

Wood ashes have been the best known potash fertilizers, but now the unleached ashes are very scarce, and the leached ashes are of but little use. In some parts of Canada the carbonate of potash, having its source in wood ashes, is largely used and answers very well, being readily available. However, the two great potash fertilizers are the muriate of potash and the sulphate of potash. Both contain approximately 50 per cent. of pure potash. The muriate is the more popular, being a little more easily assimilated by the plants. At the present time the greatest amounts come from Germany, though rumors are afloat that large deposits are laid down in some parts of North America. Potash seems to be a general plant stimulant.

APPLICATION OF FERTILIZERS.

There is no way to tell without experimenting what food constituents a soil lacks; the crops themselves give valuable suggestions. As a rule, lack of nitrogen is indicated when plants are pale green in color or when there is a small growth of leaf or stalk, other conditions being favorable. An excessive growth of leaf or stalk, accompanied by imperfect flowers, buds and fruit development, indicates too much nitrogen for the potash and phosphoric acid. When such crops as corn, cabbage and potatoes have a luxuriant, healthy growth, or when fleshy fruits of fine texture, flavor and color can be grown, there is sufficient potash. Low grade in quality of plants is indicative of lack of potash. If the crop produces heavy, plump kernels, a sufficiency of phosphoric acid is assured. All stockmen study very carefully the compounding of balanced rations for their stock and also the economic returns that can be had from various combinations and systems of feeding. Plants are exactly like animals; to give the best results, food in the proper proportions must be applied, available at the right time. Probably to a greater degree than with the animals is the deficiency of a single constituent noticed. They persistently demand a balanced ration. Too much nitrogen cannot compensate for a loss of potash or phosphoric acid. Again, we notice that some animals show a particular liking for a certain kind of food, so it is with plants; wheat responds more readily to sodium nitrate than to nitrogen applied in any other commercial form; barley rather does better, due to the better sample, with the ammonium sulphate. Tobacco, sugar beets and potatoes require their supply of potash in the form of the sulphate or the quality will be poorer. We must study the requirements of our plants and also of our soils; in no other branch of agriculture can money be more easily wasted than by the careless use of commercial fertilizers.

Without experiments no hard and fast rules for the application can be laid down. We may have the soil analysed and find out exactly what it contains, and we know what the requirements of the various crops are, but without actual experiment this knowledge is valueless. Every farmer to be positive must conduct some simple tests to see the actual effects upon the crops. A soil may have a considerable amount of the required food, but in such a form that it is not available.

The following plan of experiment with potatoes illustrates how the farmer may study his soil to find out what is deficient, and to prove for himself whether it will pay him to use fertilizers, or not. For other crops of the farm the different fertilizing constituents may be used in the different proportions recommended later in this article, and they could be arranged similar to the following:

Plot 1.—No fertilizer.
Plot 2.—Nitrate of soda, 150 lbs. per acre.
Superphosphate, 350 lbs. per acre.
Sulphate of potash, 200 lbs. per acre.
Plot 3.—Nitrate of soda, 150 lbs. per acre.
Superphosphate, 350 lbs. per acre.
Plot 4.—Nitrate of soda, 150 lbs. per acre.
Sulphate of potash, 200 lbs. per acre.
Plot 5.—Superphosphate, 350 lbs. per acre.
Sulphate of potash, 200 lbs. per acre.

The object of this experiment is to bring out what constituent or constituents the soil is most in need of, and also whether the fertilizers would give a sufficient increased yield to pay for their application. Thus, in plot 2, we have all three of the main fertilizing constituents used. In each of the three succeeding plots one each of these materials has been dropped out in turn, and thus the influence of this constituent is seen in the crop. Plot 1 received no fertilizer, and is used as a check to estimate the value of the fertilizers.

"The amounts used per acre will vary with the nature of the crop and the soil. The sources of potash, phosphoric acid and nitrogen may be muriate of potash, acid phosphate and nitrate of soda. For experimental purposes the plots may vary in size from 1-20 to ¼ of an acre, and should be as uniform in quality of soil, previous manuring and cropping as possible. Such experiments would lead to fairly definite information, though the character of the season, such as a late, wet spring, or a severe drought, may interfere seriously with the favorable action of the fertilizers applied."

PURCHASE OF FERTILIZERS.

Without doubt it is more economical and much more satisfactory to buy the various ingredients separately and then mix them at home to suit the particular soils, crops or other local conditions. The farmer can more easily supplement the farmyard manure. He will not be purchasing any fertilizer in which his soil is already rich, and this he is sure to do in some cases when buying a complete fertilizer. In short, he can control the entire operation by this method, whereas by the purchasing of the already mixed fertilizers he is more or less at the mercy of others, and all his work, if he has performed any experiments, depends upon them as well. In any case he should demand a guarantee as to the contents.

After fertilizers have been purchased, care must be taken that they are not mixed improperly, thus aiding some chemical action whereby the ingredients become deteriorated. The following rules will serve as a guide:

Never mix if at all moist.

(1) Sodium nitrate with superphosphate,
(2) Superphosphate with basic slag,
(3) Ammonium sulphate with basic slag,
(4) Calcium cyanamide with acid manures.

The following mixtures are safe:

(1) Superphosphate with ammonium sulphate,
(2) Basic slag with sodium nitrate,
(3) Bone fertilizer with sodium nitrate or ammonium sulphate,
(4) Bone fertilizer with basic slag.

Fertilizers should always be applied as soon as possible after mixing.

The amounts to apply will vary so much with conditions that approximations only can be given. The following will give some idea:

POTATOES.

Nitrogen—100 to 150 lbs. of sulphate of ammonia.
Phosphoric acid—250 to 350 lbs. of superphosphate or 300 to 400 lbs. of basic slag.
Potash—150 to 250 lbs. of sulphate of potash.

FRUIT.

Nitrogen—100 lbs. of nitrate of sodium.
Phosphoric acid—300 to 500 lbs. of superphosphate.
Potash—200 to 300 lbs. of muriate of potash.

TOBACCO.

Nitrogen—150 lbs. sulphate of ammonia or 200 lbs. nitrate of soda.
Phosphroic acid—250 to 400 lbs. phosphoric acid.
Potash—300 to 500 lbs. sulphate of potash.

BEETS AND OTHER ROOT CROPS.

Nitrogen—150 lbs. of nitrate of soda.
Phosphoric acid—350 lbs. of superphosphate or 450 lbs. of basic slag.
Potash—120 lbs. of sulphate of potash.

It is generally best to sow on surface; use a fertilizer distributer, and then work in lightly. The phosphoric acid and potash fertilizers are retained in the soil and may be used by the crops in succeeding seasons, but the nitrogenous fertilizers will leach.

Cultivation and good seed must accompany the use of any fertilizer, because they are only stimulants in so far as they are direct food materials, and, applied judiciously and economically, either to make up the deficiency of the farmyard manure or in specialized intensive farming, will give good results.

PACKING AND MARKETING OF FRUIT.

J. P. Carey, Department of Agriculture, Ottawa, Ont.

In speaking of this subject I realize that it is a matter that has been pretty well threshed out, but judging from the many complaints we read and hear about, the many disappointing returns, and scores of serious losses, involving the putting out of business of many a dealer, it would seem that surely there is still more to learn about the handling of our fruit in order that we may get the best results. In years gone by, when everything along the line of fruit handling was done in a slipshod manner, when it appeared to be nobody's business—or, perhaps, everybody's business save that of the grower—there was very good reason for failure, but now when the days of playing horse with the great fruit industry of Canada have passed, and when better methods are fast coming into practice, and when the growers are realizing the great possibilities of the orchard when properly handled it seems to me that the time of reasonable success, at least, should be in sight for those engaged in the apple industry. Some may wonder why that in the face of the fact that so much educational work has been done better results have not come more rapidly. Having a fair knowledge of conditions for the last quarter of a century it is no surprise to me that the improvement should come slowly. We have a long way to come on some points; we must be born again, so to speak, before we arrive at perfection. I will state some of the things from which we must be weaned away.

The grower who for years has been in the habit of selling the produce of his orchard to the itinerant dealer, whether by the barrel or by lump sale, especially by the latter, rid himself of everything down to the merest cull, for which he received cash—even though a small amount in some cases—and he took no care of his trees because the dealer found no fault with the quality of the fruit. One grower remarked to me that the dealer did not leave him enough culls to make a pie. Now, when this same grower becomes a member of a co-operative association, and finds that perhaps 30 per cent. of his apples have been rejected as culls at the packing house, he naturally thinks that things in general are badly out of joint. He hastens to the manager—who, if he is a little fellow, feels like hiding—and threatens to withdraw from the association. He perhaps becomes a general knocker and is almost sure to have a few sympathisers. Nearly every association has this experience, although I am glad to say that in most of them the percentage of kickers is small.

Then we have, on the other hand, the managers, foremen of gangs, and sorters. The majority of these, or, at least, many of them, have been engaged in some way under the old conditions. They were initiated in the days of the irregular "pack" and many of them grew up in that school. They find it very hard to get away from the habits that grew up with them. I am not referring particularly to the fraudulent pack, but to the careless and slovenly pack, that was encouraged by the particular methods then adopted. Under the present methods many of the men referred to are engaged, and we are not surprised to find that even in co-operative associations the grading is not what it should be, when those engaged in the work should have no interest in doing it, other than in a first-class manner. I, however, look for steady improvement along this line.

Then as to the marketing. In this it seems we are still at fault, or at least have more to learn. First as to the package, let me say that we must give the matter more study, and not to ship blindly to all kinds of markets, all kinds of fruit, in all kinds of packages. I believe the secret of success in marketing lies in finding out just what certain markets want, both in fruit and style of package, and give them only what they want. For instance, don't ship boxed apples to a market that is calling for barrels, nor barreled apples to a market where nothing but boxes is wanted. To the bald question: "Does it pay better to ship apples in boxes than in barrels?" I give the old-time answer: "It just depends." In the greater part of the North-West we have no choice. They must have boxes. Therefore, if we have the western market in view, get ready to pack in boxes, at least a large percentage of the fruit. If we intend exporting, the barrel still seems to be popular, except in certain sections of England and Scotland, where the box as a package is steadily growing in favor. For domestic use generally, especially Toronto, for instance, the box is the package wanted, and will pay better than the barrel.

I come now to the not least important phase of the business, namely, the making of contracts. There has been no end of trouble in this particular, more especially where the contract price is high, and the pack turns out a little faulty. Of course there are cases, for instance last season, when the seller cannot dictate terms, and perhaps must accept the best he can get, but the f.o.b. car sales should be the aim of every salesman, and he should adhere to it as much as possible. There is a common fault, in my opinion, practised by very many of our associations, namely, the asking of exorbitant prices early in the season. Now I want to see the growers and dealers get every cent that is coming to them, but let me tell them that the apple production is assuming enormous proportions, and if we want to move the product out rapidly and get it into consumption we must be satisfied with a reasonable price. There is no difference between the apple business and any other in the main particular, namely, the transactions must show a profit, or we will have to look for new dealers each year.

HOW CROP PRODUCTION MAY BE INCREASED.

By W. J. Squirrell, O.A.C., Guelph, Ont.

The obtaining of the maximum yield per acre of grains and other crops depends on a great many different factors, and in the short time at my disposal I intend to deal with but three of the chief of these, which are: Variety, Selection of Seed, and Dates of Seeding.

You are at liberty at any time to ask questions. It is very often in this way that we get the most out of the subject under discussion.

Many of our good farmers have found in the past few years that they must, if they are going to get the most in production, obtain the very best varieties. By the best variety I mean the variety that, under their particular conditions, will produce the most per acre. The importance of variety is readily understood when we find that under like conditions of soil, climate and cultivation, there are some varieties that will yield nearly twice as much per acre as other varieties. In addition to this great difference in yield there is also a great difference in the quality of different grains and other crops as well. This is, perhaps, best illustrated in the oat crop. The percentage of hull is the factor that indicates quality in oats, the thinner the hull in an oat the better the quality of that oat. The percentage of hull of oats is sometimes as low as 22½ and sometimes as high as 40 per cent. Hull has about the same feeding value as the same weight of straw.

The question then naturally arises, if there are these great differences of yield and quality in crops, how are we going to obtain the best? One of the best methods of getting started with pure seed of the best varieties is to obtain seed through the Experimental Union at Guelph. Only small amounts of seed are sent out, but these rapidly increase in quantity, and in a short time the farmer has enough seed to sow that particular crop on his own farm. A number of good farmers are at present growing no other varieties but those that they first obtained from Guelph in small quantities. Many of the most noted and best varieties in the Province to-day were first started in this way, varieties such as the Siberian and Daubeney oats, the Mandscheuri and O. A. C. No. 21 six-rowed barley, the Wild Goose spring wheat, the American Wonder and Dawson's Golden Chaff winter wheat, the Rye buckwheat, the Early Britain peas, the Yellow Leviathan mangels, and the Empire State and Davies' Warrior potatoes, etc.

Q.—How does the American Banner compare with the Siberian?

A.—The American Banner does not yield quite so well per acre, but is about the same in strength of straw and about two per cent. thicker in the hull.

Q.—Is the Daubeney an early oat?

A.—Yes, one of the best of the early varieties. It is very thin in the hull, testing only about 24 per cent., and is an excellent yielder, standing third on the list at Guelph at the present time. This variety is very often used in a mixture for grain production.

Q.—What mixture do you recommend for grain?

A.—One bushel of Daubeney oats per acre and one bushel of the Mandscheuri or O.A.C. No. 21 barley per acre. These proportions are made by weight, 34 pounds of oats and 48 pounds of barley. The mixture should be remixed each year, as, on the average soil, the barley will soon crowd out the oats if this parcaution is not taken.

Q.—Have you tested the Tartar King oats?

A.—Yes, we have grown it for several years at Guelph. It is only a fair yielder, weak in the straw and quite thick in the hull.

Q.—Have you had any trouble with the germination of mangel seed?

A.—Yes, there has been a great variation in the percentage of seed that would germinate in the past three years. Nearly all varieties have been low in germination and it is always wise to test the germination of mangel seed before sowing.

Q.—What do you do for smut?

A.—There are a number of treatments that are effective in treating the loose smut of oats and the stinking smut or bunt in wheat. We have obtained the best satisfaction from using the Formalin immersion treatment which is as follows: Immerse the oats or wheat in a solution of one pint of formalin and forty-two gallons of water for twenty minutes at a temperature of sixty to seventy degrees F., and sow as soon as the grain will run freely through the grain tubes.

Q.—What about two-rowed barley? We used to ship a good deal from this district a few years ago.

A.—Two-rowed barleys are not much grown to-day, which is largely due to the fact that experiment stations and practical experience have shown that the six-rowed barleys are much better yielders and consequently more profitable to grow. They are also earlier in maturing.

Now, just a word regarding seed selection. The selection of the most suitable varieties is a very important one, but equally important is the selection of the best seed of these varieties. This point is well illustrated in the Field Husbandry Demonstration car. In this car you will find selections of large plump seed, medium-sized plump seed, small plump seed, shrunken seed, and broken seed of various crops growing in boxes. You will see a marked difference in the growth of each selection. All these different selections were planted at the same time and treated exactly the same in every way. The same number of seeds were planted in each case.

The growth of the plants in the box containing broken seed is very irregular in height and vigor, and a considerable number of the seeds did not germinate at all. This last is due to the fact that in many cases where the seed is broken by the separator the germ is destroyed. The shrunken seed selection box shows lack of vigor in many of the plants. The medium and small plump seed selections show good uniformity of growth, but are lacking in vigor when compared with the large plump seed. The large plump seed of all the selections shows the most vigor in the plants and also the greatest degree of uniformity and the highest percentage of plants germinated.

Actual field tests in grain crops have produced at Guelph from large plump seed about 19 per cent. more grain per acre than small plump seed. In the rape crop there is a difference of 40 per cent. in favor of the large plump seed compared with the small plump seed. In roots there is a difference of nearly sixty per cent. in favor of the large plump seed. A farmer can make no better investment than to purchase the best varieties and select the best seed of these varieties.

We have often heard that old expression "There is a time to sow." The expression is just as true to-day as when first used. In the Demonstration Car you will find the dates of seeding and the comparative results in yield per acre for several years of the different spring grains well illustrated. The first date of seeding was made as soon as the land was ready in the spring. Each of the other dates are one week apart, the time between the first and the sixth date thus being five weeks.

Spring wheat requires a long time to mature and the results show that, if we are to obtain the highest yield, we must sow it as soon as the land is ready in the spring. Later seedings give much poorer results. There is a marked decrease in yield per acre after the first week for seeding is past. Barley will be seen to have given the best results when sown as soon as the land is ready. There is not, however, as much difference between the first and second dates of seeding as with spring wheat. With oats, the second date or one week after seeding commenced gave the most per acre, 8/10 of a bushel more than the first date. Peas have given the best results when seeded on the second date. You will notice that there is a considerable difference, however, between the first and second dates, and even the fourth date gives about as good results as the first date of seeding.

In summing up the results of these dates of seeding experiments, we find this: For every day's delay after the best time for seeding there was a loss of 56 pounds of oats per acre, 53 pounds of barley per acre, 29 pounds of spring wheat per acre, and 23 pounds of peas per acre. To obtain the largest yield per acre, the order of seeding on the average soil should be, spring wheat, barley, oats and peas.

SELECTING, BREEDING, AND CARE OF SHEEP.

W. J. Westington, Plainville.

From the early history of man sheep-raising as a source of profit has marked its annals down to the present time, and it appears that each decade of late makes a further mark in the improvement of our flocks. This has required and still calls for scientific study with experience in order to keep up that standard of excellence which has already been achieved in the various breeds of our sheep.

We certainly should become more and more convinced of the fact that more attention must be paid to our flocks and herds, as we can no longer depend upon grain-growing alone. The raising and feeding of live-stock must therefore take a foremost place in our agricultural pursuits as our soil has become partially worn out and nothing can restore it to its former fertility so quickly as the keeping of sheep. The philosopher was justified in saying "The sheep has a golden hoof."

We cannot afford to breed in a haphazard way. It is necessary to breed along some distinct line, according to our circumstances and surroundings. For instance, the lighter breeds, such as the Downs, will do better on poor, dry, light lands than the heavier breeds, such as Cotswolds, Lincolns, or Leicesters. These latter breeds require the range of better pasture land.

While we can improve upon the native scrub with sires of prepotent power, yet we feel that life is too short to attempt to breed up to the perfection that has characterized the pure-bred which so largely possess the qualities of both wool and mutton so much desired for the use of man. But we would advise purchasing from some reputed breeder a few choice ewes (not necessarily prize-winners) of the breed he fancies, not too large nor yet too small, not too compact nor yet too roomy, with a good strong loin and with smooth full and broad back; good at girth, prominent, broad deep chest; with well-sprung deep ribs, heavy flank, and broad well-formed quarters.

The head should have an effeminate, modest appearance, with full, mild eye and open nostrils, neck rather short and well set on shoulders with a crest, thus giving an airy appearance. The body should be evenly fleshed, with a mellow skin covered with abundance of all wool free from any appearance of hair, not even on the thighs. The limbs should be well-formed and moderately short.

Then select a ram showing masculinity or a good strong head without coarseness; the neck should be short and thick yet arched and full where joined by the shoulders. These points are indicative of strong character. The body should be more compact than that of the ewe, with short well-formed straight legs, and good strong pasterns, as you will readily see, differing in some of these respects from the female. He should be active showing great vitality. A shearling is most desirable though a good strong lamb is to be preferred to an old worn-out, over-fed prize winner.

We should in all cases select for breeding purposes the choicest of the ewe lambs (the culls going to the butcher) with as much uniformity as possible, so as to form a family distinct in appearance from any other, and thus know them from your neighbor's sheep without disfiguring the ears or otherwise marking them with daubs of paint. They should not be allowed to reproduce until two years old, and not later than five years old, as the lambs of the aged and weak may have a deteriorating effect upon the flock. If, unfortunately, you have introduced a sire whose progeny is undesirable, the better way to make amends is to sell him to the butcher with all his gets, as this would be a sure way of removing the bad blood at its first appearance, instead of trying to breed it out, as such will repeat itself after many generations.

To make sheep-husbandry a success, we should watch, not only the breeding, but also the feeding, with the greatest care, supplying plenty of fresh water the year round. Juicy and succulent food is also required to keep them in a healthy condition. This may be had in the autumn season when the pasture is dry, by allowing them to feed on rape, turning them on when the leaves are dry.

A few turnips in winter will also be a stimulus to them. They should be fed plenty of well-saved pea-straw with a little whole oats or a few unthreshed peas and clover hay once a day. And after lambing a little bran with roots should be added to the ration, so as to supply plenty of milk for their offspring. The lambs should be taught to eat bran, oats, cabbage or sliced turnips as quickly as possible, in order to stimulate growth and prepare them for the early market or for exhibition purposes. Sheep should have access to salt, as it is essential to good health. A little sulphur added will destroy the ticks which are so troublesome and injurious to them. They should also have plenty of exercise, it being natural for them to roam, with dry and comfortable quarters or sheep-pens which need not be expensive. This might be a frame building double boarded with felt paper between, the outer boards being matched and painted to keep out the wind, with hayloft and feed-room in the same building. It should be partitioned to meet the requirements of dividing the flock as may be desired from time to time. The rams should be kept by themselves. The apartments should have a goodly number of windows to admit abundance of sunlight which is essential to health and comfort. They should also be well ventilated but practically free from draught, with a ceiling fully eight feet high for air space, and with wide doorways for ingress and egress to prevent injury from crowding. Proper racks and troughs should be supplied; a high close woven-wire fence surrounding the yard would prevent the destruction of the sheep by the useless prowling dogs that infest our land. The cruel practice of washing sheep should be abandoned, for serious loss frequently ensues by taking cold and dying, as well as loss of time in this respect. In fact, they should always be treated kindly, as they are of a nervous disposition.

Notwithstanding, we would advise docking short while young and trimming before placing on the market, as it adds materially to their appearance and comfort.

In summing up, we believe few farms are complete without them, as they will thrive on the waste-places of the earth where the cow or horse could not subsist, and will also partake of a greater diversity of food than almost any other animal, thus eradicating from the farm many noxious weeds, and turning the same into wool and mutton.

Since this branch of mixed farming is so profitable, and requires so little care and labor, which has become so very expensive in recent years, it is evident that greater attention should be paid to this important factor of stock-raising which so largely supplies both food and raiment for man, as a number of sheep will bring in a good return in money to a more or less extent the year round, through their fleece and nutritious meat production.

NOTES ON SPRING TILLAGE.

PROF. J. B. REYNOLDS, O. A. C., GUELPH.

(1) Now is the time to observe the need of draining. The existence of pools and wet and dry patches and the general direction of the water courses should be observed in order to learn whether drainage is necessary and in what places and directions drains should be laid. The draining of farm lands should be regarded as an investment. The improvement resulting from drainage, where drainage is necessary, will return large annual dividends and will speedily discharge the capital outlay by reason of the improved texture, moisture content, and temperature of the soil, and the resulting increase in the quantity and quality of the crops.

(2) Also, now is the time to observe the benefits of fall plowing. The difference should be noted between land, especially sloping land, that has been left smooth and firm over the winter, and land that was plowed in the fall and left rough and loose. The former has by the action of the rain and snow become packed and possibly puddled, or, on steep or sloping land, has been gullied and washed out and deprived of much of its valuable material. This land, if left to itself, will soon become hard and difficult to till. The fall plowed land, however, will be in a far more mellow and friable condition, and will make an earlier and a superior seed bed.

(3) Shallow tillage should begin on land as early as possible to prevent hardening and to conserve the moisture in the subsoil. After the seeding is done, land for roots and corn or other later crops should be cultivated at once to prevent the escape of moisture and to insure a good seed bed.

(4) It is a good plan sometimes in preparing land for seeding to harrow before cultivating. This will mellow the surface and will form a better seed bed than if the cultivator is used first. If plowing is to be done, it should be done as early as possible, and as shallow as is consistent with its purpose. Too deep plowing will dry out the surface soil to a greater depth than is advisable, and by breaking connection with the subsoil will probably deprive the young crops of needed moisture.

(5) The roller should be used with care and judgment; otherwise the labor will be wasted, or worse still, harm will be done. If the seed bed is lumpy, the lumps may be broken by rolling soon after a shower when they have been softened by the moisture. If the seed bed is dry, the roller may be used to advantage. It compacts the surface soil and thereby enables the moisture from below to rise to the surface and thus hastens germination of seed. In both these instances the roller should be followed with the harrow, if possible, in order to loosen the surface and prevent loss of moisture. It should be borne in mind in all spring tillage that the capilliary movement of water is much more rapid through moist soil than through dry soil, and that compact soil will raise water to a much greater height than will loose soil. If it is desired, therefore, to bring the water to the surface, as in the case of a dry seed bed, the soil should be compacted by some such implement as the roller. If, however, as is usually the case, it is desired to check the upward movement of the water, then the soil should be loosened and allowed to dry out, so that the loose dry surface may check the upward rise of water and prevent consequent loss.

ANNUAL REPORT

OF THE

FARMERS' INSTITUTES

OF THE

PROVINCE OF ONTARIO

1912

PART II.—MEETINGS AND STATISTICS

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty,
1912.

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West
TORONTO.

KEY TO FARMERS' INSTITUTE MEETINGS, 1912-13.

ANNOUNCEMENT OF MEETINGS.

Institute.	Pages.	Divisions.		
		Special.	Regular.	Supplementary.
Addington	25, 32		9	16
Amherst Island	25		9	..
Brant, North	23		4	..
Brant, South	23, 29		4	9
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Bruce, North	22		1	..
Bruce, South	22, 27		1	4
Bruce, West	26		..	2
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Grey, North	20, 24	B	5	..
Grey, South	20, 27	B	..	4
Haldimand	23, 29		4	9
Halton	22, 24		1 and 6	..
Hastings, East	21, 25, 32	D	9	15
Hastings, North	21, 32	D	..	16
Hastings, West	21, 25, 32	D	9	15
Huron, East	26, 27		..	1 and 4
Huron, South	22, 28		2	6
Huron, West	22, 26		1	1
Kent, East	23, 29		3	10
Kent, West	23, 29		3	10
Lambton, East	20, 22, 27	A	2	5
Lambton, West	20, 22, 27	A	2	5
Lanark, North	25, 33		10	18
Lanark, South	25, 33		10	18
Leeds, N., and Grenville	25, 33		10	18
Leeds, South	25		10	16
Lincoln	23, 30		4	10
Lennox	25, 32		9	16
Middlesex, East	22, 28		2	7
Middlesex, North	22, 28		2	5
Middlesex, West	23, 28		3	7
Monck	23, 30		4	10
Norfolk, North	23, 29		3	9
Norfolk, South	23, 29		3	9
Northumberland, East	21, 25, 32	D	8	15
Northumberland, West	21, 25, 32	D	8	15
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Ontario, South	20, 24, 32	C	7	15
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Oxford, South	23, 30		3	9
Peel	24, 30		6	12

Institute.	Pages.	Special.	Divisions.	
			Regular.	Supplementary.
Perth North	22, 28		2	6
Perth, South	22, 28		2	6
Peterborough, East	20, 32	C	..	15
Peterborough, West	20, 32	C	..	15
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Renfrew, North	33		..	18
Renfrew, South	26, 33		11	18
Russell	26, 33		11	17
Simcoe, Centre	20, 27	B	..	3
Simcoe, East	20, 24, 27	B	5	3
Simcoe, South	20, 24, 30	B	5	12
Simcoe, West	20, 24, 27	B	5	2
Stormont	26, 33		11	17
Victoria, East	20, 25, 31	C	8	14
Victoria, West	20, 25, 31	C	8	14
Waterloo, North	24		5	..
Welland	23, 30		4	10
Wellington, Centre	24		6	..
Wellington, East	24, 31		5	12
Wellington, South	23		5	..
Wellington, West	24, 31		5	12
Union	22, 28		1	6
Wentworth, North	23, 30		4	10
Wentworth, South	23, 30		4	10
York, East	24, 31		7	13
York, North	24, 30		7	12
York, West	24, 31		6	13

PART II.

FARMERS' INSTITUTES OF ONTARIO,

1912-13.

ANNOUNCEMENT OF SUPERINTENDENT.

This volume of the Farmer's Institute report contains announcement of meetings for the Winter of 1912-13, also statistical statement of the local organizations throughout the Province for the year ending May 31st, 1912.

In addition to the meetings announced herein, we are planning for about a hundred short courses in stock and seed judging, as well as a number of special meetings covering fruit growing, poultry raising, dairying, etc. The call for assistance at special meetings is more general from year to year and it is the aim of the Department to meet, so far as possible, the desires of the farmers in the various localities for special assistance.

In the County of Waterloo we are co-operating with the Farmers' Clubs and Farmers' Institutes in sending speakers at various times to address meetings at which subjects of special interest in the localities concerned will be dealt with. These special meetings are not announced in Part II., but will be arranged for from time to time in accordance with the desires of the applicants and the speakers available.

Women's Institutes.

This feature of Departmental work continues to expand, and we now have over 700 societies and a membership of 20,861. While we have continued to send speakers to the summer series of meetings and to a number of points where the Farmers' and Women's Institutes co-operate in holding meetings in the winter months, as in previous years, we have secured the services of four lecturers who are giving a regular series of demonstration-lectures to groups of Institutes, spending one day a week at each point taking advantage of the work. These demonstration-lectures place within the reach of the women of the rural districts instruction in cooking, domestic art, and home nursing.

Altogether the work of the Women's Institute is being much appreciated by the women of the Province, and the activities of the organizations are from year to year branching out into new fields which are making for a better home and community life.

Farmers' Clubs.

These continue to be a medium through which much effective work is being done. The growth of this feature is not, we regret, in keeping with its importance. We believe, however, that through the encouragement and assistance to be given in this work by the District Representatives, a marked advance will be made in the near future.

Geo. A. Putnam,
Superintendent.

Toronto, Nov., 1912.

ATTENDANCE, MEMBERSHIP, ETC., FOR 1911-12.

Institutes holding largest number of meetings during the year ending May 31st, 1912, are:—

Parry Sound, East	28
Ontario, South	25
Grey, Centre	24
Lambton, East	24
Waterloo, North	24
Waterloo, South	22
Haldimand	21
Kent, East	21
Simcoe, Centre	21
Ontario, North	20
Oxford, North	20
Welland	20
Grey, North	18
Huron, East	18
Lambton, West	18
Brant, North	17
Brant, South	17
Essex, South	17
Kent, West	17
Manitoulin Id., West	17
Muskoka, North	17
Oxford, South	17
Bruce, South	16
Dufferin	16
Huron, West	16
Hastings, North	16
Monck	16

Norfolk, North	16
Wellington, East	16
Wentworth, North	16
Grey, South	15
Frontenac	15
Perth, North	15
York, North	15
York, East	15
Elgin, East	14
Halton	14
Simcoe, West	14
Lincoln	13
Algoma, East	13
Middlesex, East	13
Stormont & Cornwall	13
Union	13
Wentworth, South	13
Durham, West	12
Elgin, West	12
Hastings, West	12
Hastings, East	12
Huron, South	12
Middlesex, North	12
Norfolk, South	12
Prince Edward	12
Simcoe, South	12

Institutes having the largest attendance at their meetings:—

Lambton, East	2767
Waterloo, North	2091
Oxford, North	2052
Bruce, South	1930
Northumberland, East	1900
Perth, North	1845
Grey, Centre	1722
Lincoln	1700
Ontario, South	1685
Waterloo, South	1602

Grey, South	1600
Grey, North	1563
Huron, West	1453
Middlesex, East	1437
Oxford, South	1350
Wellington, East	1290
Ontario, North	1284
Huron, East	1278
Welland	1278
Parry Sound, East	1277

Institutes with the largest membership for the year ending 1911:—

Carleton	503
York, North	480
Lambton, West	466
Hastings, North	464
Lambton, East	435
Waterloo, North	415
Perth, South	400
Waterloo, South	395
Simcoe, Centre	381
Glengarry	364

Oxford, South	362
Huron, East	360
Peel	359
Halton	357
Middlesex, North	341
Stormont & Cornwall	324
Brant, South	316
Grey, North	303
Kent, East	300

FRUIT INSTITUTES.

During the season of 1911-12 special Fruit Institutes were conducted in the following places,—Blyth, Boston, Bowmanville, Brighton, Brooklin, Brougham, Burford, Burlington, Clarksburg, Colborne, Courtland, Dunnville, Delhi, Falkland, Garden Hill, Grafton, Meaford, Midhurst, Mohawk, Orono, Oshawa, Owen Sound, Paris, Pickering, Porters' Hill, Port Hope, Port Perry, Picton, Port Rowan, Prescott, Simcoe, Warkworth.

This work is most effective. Many of the courses were for only one day, while a few lasted for two days. Attendance 5,350.

JUDGING CLASSES.

Short Courses in Seed and Stock judging were conducted at the following places,—Ameliasburg, Aylmer, Ayr, Belleville, Bolton, Brigden, Brinston, Carp, Chatsworth, Cobourg, Cornwall, Dundalk, Durham, Dutton, Essex, Fenelon Falls, Grand Valley, Hagersville, Holstein, Inwood, Keene, Kent Bridge, Linwood, Lochiel, Markham, Metcalfe, Millbrook, New Hamburg, New Lowell, Newmarket, Norwood, Oakwood, Omemee, Orillio, Orono, Oshawa, Pakenham, Peterboro, Picton, Port Perry, Port Hope, Preston, Renfrew, Richmond, Ridgeway, Shelburne, Silverdale, Stirling, Straffordville, Sunderland, Thornton, Tweed, Walkerton, Waterford (or Rockford), Woodville, Wooler.

This feature of work continues to be very popular. The number of Courses was increased from 42 to 56 during the past winter, and the total attendance at these classes was 49,400.

ANNUAL MEETINGS.

Speakers were furnished for 35 annual meetings of Farmers' Institutes, held in the month of June. At several of these meetings the Department sent an instructor to give demonstrations in the judging of live stock.

DAIRY MEETINGS.

Our two chief Dairy Instructors and the men under their charge attended a number of special dairy meetings, most of them held in connection with the annual business meetings of the factories and creameries. 327 such meetings were held with an attendance of 13,761.

SPECIAL NORTHERN MEETINGS.

The Farmers' and Women's Institutes co-operated in holding meetings in the Northern portions of the Province during May, June, and early July. A gentleman and lady speaker attended at the 127 places visited. The reports from the speakers and Officers indicate that there is a growing interest in agriculture and home education in the Northern sections.

BETTER FARMING SPECIAL.

Through the co-operation of the Canadian Pacific Railway and the Department of Agriculture, we were enabled to run a Better Farming Special over the C. P. R. lines between Windsor and Toronto; Guelph Junction and Goderich; Streetsville and Owen Sound; Orangeville and Toronto; Toronto and Montreal, stopping at fifty-four places. The instruction was given at three points each day. First stop, 9 to 11.30; second stop, 1 to 3.30 and third stop, 4 to 6.30. The train consisted of four baggage cars and three lecture coaches with a sleeper and diner for the accommodation of the staff. The baggage cars contained exhibits as follows:

FIELD HUSBANDRY.

1. Samples of oats, wheat, barley, peas, grasses, clovers, corn, and potatoes. Germination tests, effects of seed selection. Weeds and weed seeds, etc.

LIVE STOCK.

2. Bones, showing blemishes in horses, diseased tissues of horses and cattle. Models of horses' teeth, hind legs and feet. Tuberculous specimens, etc.

DRAINAGE.

3. Levelling instruments, tools, tile, soil samples. Charts showing beneficial effects of drainage and proper cultivation, etc.

DAIRYING.

4. Pails, strainers, churn, butter worker, Babcock tester and cooling equipment. Samples showing effect of dirt in milk. Samples of cheese, butter, boxes, paper, etc.

FEEDS.

5. Bran, Shorts, mill-feed, cotton-seed, linseed meal, oilcake, alfalfa meal. etc.

FRUIT GROWING.

6. Samples of fruit, nursery stock, mounted specimens of insects and fungus pests; spraying apparatus and mixtures, tools for pruning, packing outfits, sample of fruit barrels, boxes, baskets and nursery stock.

POULTRY.

7. Model poultry houses and appliances, incubators, and brooders, egg cases, apparatus for candling eggs, feeds, trap nests, feeding troughs, etc.

BEE-KEEPING.

8. Hives, appliances, honey and charts.

FERTILIZERS.

9. Commercial fertilizers, charts showing results, etc.

CONCRETE.

10. Blocks, bricks, tile, materials, etc. Method of testing, moulds, forms, etc.

The lecturers were drawn largely from the staff of the Ontario Agricultural College, while some of our regular Institute workers and employees in various Branches of the Department assisted. The lectures given were based largely upon the exhibits shown in the baggage cars. Practically all lines of agriculture of interest to the farmers in the sections covered, were dealt with in the lectures. During the three weeks of operation, over 18,000 people took advantage of the exhibits and lectures.

The Department appreciates the liberality of the Canadian Pacific Railroad in making this form of instruction possible, and we believe that the outlay on the part of the Department and the railroad was money well expended.

SUMMARY OF ATTENDANCE.

At Regular, Supplementary, and Special Institute Meetings for the twelve months ending June 30, 1912:—

Regular and Supplementary Meetings:	
Farmers' Institutes	86,460
Women's Institutes	177,342
Special Institutes:	
Farmers' and Women's Institute Conventions	6,750
Better Farming Special	18,500
Fruit Institutes	5,350
Seed and Live Stock Judging Classes	49,400
Factory and Creamery Meetings	13,761
Total	357,563

We trust that the loyal support which has characterized the efforts of the Institute Officers for many years will be continued.

GEO. A PUTNAM,
Superintendent.

Toronto, Ontario,
Nov., 1912.

STATISTICAL REPORTS OF LOCAL FARMERS'

INSTITUTE DISTRICT.	Membership, December, 1911.	Membership to June, 1912.	No. of meetings held.	Total attendance.	No. of papers read or addresses delivered.	Receipts.			
						Cash on hand per last report.	Members' fees.	Grants.	Receipts from excursions.
						$ c.	$ c.	$ c.	$ c.
1 Addington	68	72	7	207	11	9 22	17 50	50 00	......
2 Algoma, Centre	81	161	11	636	17	132 51	20 75	50 00	53 25
3 Algoma, East	134	207	13	546	19	44 62	27 00	25 00	10 00
4 Algoma, North Shore	67	59	10	483	10	31 31	12 75	25 00	64
5 Amherst Island	......	......	......	......	......	126 09	......	......	......
6 Brant, North	169	200	17	709	40	113 68	50 25	50 00	21 85
7 Brant, South	316	293	17	1,145	18	81 73	72 50	50 00	66 60
8 Bruce, Centre	120	155	11	572	25	228 11	34 75	50 00	20 25
9 Bruce, North	207	197	11	622	13	88 18	26 25	25 00	34 65
10 Bruce, South	250	208	16	1,930	29	44 29	89 50	50 00	28 90
11 Bruce, West	276	254	10	597	17	169 35	63 50	50 00	52 58
12 Carleton	503	449	5	457	19	59 04	126 50	75 00	......
13 Dufferin	230	281	16	586	43	145 34	50 00	50 00	......
14 Dundas	262	269	5	515	24	272 77	67 00	50 00	59 85
15 Durham, East	268	262	11	542	30	147 91	64 75	50 00	2 00
16 Durham, West	234	200	12	965	21	202 96	51 50	50 00	......
17 Elgin, East	281	257	14	347	31	331 21	66 25	50 00	59 60
18 Elgin, West	243	216	12	584	36	39 55	54 75	50 00	44 60
19 Essex, North	125	66	7	180	19	61 80	15 50	50 00	......
20 Essex, South	238	370	17	1,167	36	86 79	92 25	25 00	......
21 Frontenac, Centre	46	168	7	434	12	22 98	13 70	50 00	......
22 Frontenac	111	123	15	489	30	70 32	30 50	50 00	......
23 Glengarry	364	309	12	1,438	39	50 29	78 00	50 00	......
24 Grenville, South	112	125	7	592	25	14 15	31 25	50 00	......
25 Grey, Centre	236	251	24	1,722	52	13 89	61 10	50 00	40 42
26 Grey, North	303	285	18	1,563	26	162 16	71 75	50 00	43 36
27 Grey, South	196	113	15	1,600	39	58 51	45 00	50 00	126 90
28 Haldimand	234	192	21	1,015	36	48 30	45 65	50 00	108 30
29 Halton	357	265	14	1,074	42	344 06	70 20	50 00	100 85
30 Hastings, East	126	109	12	655	26	......	26 25	50 00	......
31 Hastings, North	464	301	16	890	36	23 15	70 75	50 00	......
32 Hastings, West	104	89	12	494	29	50 26	22 25	50 00	......
33 Huron, East	360	288	18	1,278	41	105 75	70 25	50 00	14 42
34 Huron, West	132	104	16	1,453	51	18 02	27 00	50 00	36 25
35 Huron, South	186	175	12	1,179	19	57 05	43 25	50 00	......
36 Kent, East	300	240	21	1,173	32	120 28	61 25	50 00	......
37 Kent, West	219	177	17	697	33	27 69	44 50	50 00	80 15
38 Lambton, East	476	471	24	2,767	83	2 13	115 40	50 00	26 85
39 Lambton, West	466	379	18	1,260	62	65 76	97 25	50 00	26 85
40 Lanark, North	30	90	8	355	10	2 13	22 50	50 00	......
41 Lanark, South	117	56	4	705	27	3 82	13 50	50 00	......
42 Leeds and Grenville	120	67	4	458	8	......	16 00	25 00	......
43 Leeds, South	170	84	6	458	12	......	20 25	50 00	......
44 Lennox	125	91	8	550	20	87 53	22 50	50 00	25 00
45 Lincoln	196	168	13	1,700	42	113 65	42 25	55 00	20 71
46 Manitoulin, East	111	83	12	1,450	35	54 09	27 50	25 00	......
47 Manitoulin, West	107	36	17	837	33	10 04	26 75	25 00	11 00
48 Middlesex, East	291	301	13	1,437	23	53 25	70 25	50 00	57 40
49 Middlesex, North	341	218	12	1,068	36	2 11	50 75	50 00	66 50
50 Middlesex, West	165	116	10	570	20	130 48	28 75	50 00	......
51 Monk	212	162	16	1,133	20	20 86	38 00	60 00	......
52 Muskoka, Centre	69	72	6	375	18	9 03	15 50	25 00	......
53 Muskoka, North	174	185	17	526	40	2 00	20 00	30 00	......
54 Muskoka, South	68	66	6	208	16	22 98	16 50	25 00	......
55 Nipissing, East and West	49	47	6	215	12	5 15	3 00	25 00	......

INSTITUTES FOR THE YEAR ENDING JUNE 30TH, 1912.

Receipts			Expenditure.										
Miscellaneous.	Balance due Treasurer.	Total receipts.	Due Treasurer per last report.	Expense for meetings.	Officers salaries and expenses.	Postage and stationery.	Printing and advertising.	Lecturers' expenses and wages.	Books and Periodicals.	Miscellaneous.	Total expenditure.	Balance.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
......	......	76 72	......	18 80	20 00	7 40	11 50	8 00	......	1 25	66 95	9 77	1
31 40	......	287 91	......	58 00	23 00	1 60	40 20	......	......	126 40	249 20	38 71	2
......	......	106 62	......	3 00	25 00	1 50	2 50	20 00	......	16 00	68 00	38 62	3
11 75	......	81 45	......	7 00	18 20	2 57	9 50	16 50	......	7 50	61 27	20 18	4
......	......	126 09	......	6 50	10 00	19	1 75	......	......	......	18 44	107 65	5
18 97	......	254 75	......	62 45	45 50	4 49	18 10	5 10	......	25 35	160 99	93 76	6
......	......	270 83	......	34 75	60 00	1 95	44 83	15 75	......	39 85	197 13	73 70	7
......	......	333 11	......	41 50	57 35	......	15 75	28 75	......	28 60	171 95	161 16	8
......	......	174 08	......	13 85	49 00	4 64	15 72	3 75	......	28 65	115 61	58 47	9
......	......	212 69	......	86 70	40 00	16 00	43 86	......	......	2 25	188 81	23 88	10
3 00	......	338 43	......	9 40	59 45	9 92	18 20	30	54 00	25 40	176 67	161 76	11
......	......	260 54	......	7 75	50 00	5 00	11 20	......	......	35 45	109 40	151 14	12
4 21	......	249 55	......	51 90	49 00	6 04	16 85	6 00	......	10 00	139 79	109 76	13
10 16	......	459 78	......	24 50	50 00	2 57	14 50	11 50	......	5 00	108 07	351 71	14
09	......	264 75	......	20 25	74 85	5 30	27 00	7 55	......	10 20	145 15	119 60	15
6 45	......	310 91	......	13 25	47 00	1 64	27 05	12 20	......	12 08	113 22	197 69	16
10 27	......	517 33	30 00	11 10	4 95	75	40 60	19 75	......	80 50	187 65	329 68	17
......	......	188 90	......	7 50	35 00	9 50	11 25	34 85	......	......	98 10	90 80	18
......	......	127 30	......	3 00	35 00	1 90	18 50	17 15	......	5 00	80 55	46 75	19
......	......	204 04	......	34 75	27 00	4 60	14 75	8 50	......	3 00	92 60	111 44	20
......	......	86 68	......	3 00	30 00	4 50	5 50	6 65	......	8 00	57 65	29 03	21
......	......	150 82	......	12 00	20 00	4 50	14 75	30 75	......	5 60	87 60	63 22	22
......	......	178 29	......	19 30	45 95	4 45	32 75	9 15	......	10 50	122 10	56 19	23
......	......	95 40	......	2 00	26 35	2 95	13 25	20 10	6 95	......	71 60	23 80	24
......	4 02	165 41	......	108 75	35 50	3 29	16 75	......	......	5 14	169 43	......	25
3 47	......	330 74	......	85 75	57 40	12 89	19 77	75	......	......	176 56	154 18	26
113 20	......	393 61	......	85 00	90 95	4 25	21 50	21 05	114 05	23 15	359 95	33 66	27
3 00	......	255 25	......	51 75	85 60	14 35	32 10	40 00	......	24 80	248 60	6 65	28
26 62	......	591 73	......	56 25	85 00	12 00	35 37	62 00	......	59 60	310 22	281 51	29
8 00	......	84 25	9 87	22 70	33 00	50	16 50	1 55	......	......	84 12	13	30
......	......	143 90	......	48 50	40 00	5 00	8.50	14 50	......	9 75	126 25	17 65	31
......	......	122 51	......	8 75	30 00	5 30	12 25	13 10	......	......	69 40	53 11	32
4 13	......	244 55	......	53 60	53 00	5 53	20 50	12 00	......	10 00	154 63	89 92	33
......	14 33	131 27	......	67 10	60 00	6 25	12 25	......	......	......	145 60	......	34
......	......	150 30	......	55 05	36 45	2 56	26 55	......	......	......	120 61	29 69	35
7 00	......	238 53	......	7 50	48 05	1 80	20 62	33 75	......	19 07	130 79	107 74	36
......	......	202 34	......	2 00	67 40	8 30	79 37	10 00	......	18 80	185 87	16 47	37
11 70	......	206 08	......	41 75	63 55	12 33	15 75	62 70	......	9 50	205 58	50	38
227 32	......	467 18	......	41 25	77 45	72 50	110 75	58 65	......	38 15	398 75	68 43	39
......	......	74 63	......	9 65	26 00	1 36	7 50	3 00	......	70	48 21	26 42	40
3 30	......	70 62	......	13 75	25 00	1 25	10 00	......	......	6 00	56 00	14 62	41
......	9 03	41 00	15 98	13 15	10 00	1 75	7 75	......	......	1 40	50 03	......	42
......	......	70 25	20 50	28 45	......	2 00	10 00	1 50	......	......	62 45	7 80	43
......	......	185 03	......	60 60	48 00	4 25	12 75	......	......	......	125 60	59 43	44
......	......	231 61	......	33 00	32 05	4 80	41 15	18 50	......	25 00	154 50	77 11	45
......	......	106 59	......	2 00	15 00	3 25	10 65	15 75	......	1 00	47 65	58 94	46
......	......	72 79	......	4 00	15 00	1 82	8 50	8 00	......	5 85	43 17	29 62	47
......	......	230 90	......	87 50	40 00	7 95	26 59	4 50	16 35	6 85	189 74	41 16	48
5 00	......	174 36	......	50 35	50 50	4 00	21 50	6 00	......	......	132 35	42 01	59
......	......	209 23	......	23 00	30 00	2 20	2 50	15 95	......	......	73 65	135 58	50
......	......	118 86	......	34 25	27 00	6 50	20 20	14 00	......	6 55	108 50	10 36	51
......	......	49 53	......	13 80	12 50	1 25	7 00	......	......	12 25	46 80	2 73	52
......	......	52 00	......	2 30	25 00	1 75	6 75	......	......	15 30	51 10	90	53
1 02	......	65 50	......	19 50	20 35	41	7 50	......	......	......	47 76	17 74	54
......	2 20	33 15	......	11 15	20 20	1 75	2 25	......	......	......	35 35	......	55

STATISTICAL REPORTS OF LOCAL FARMERS' INSTITUTES

INSTITUTE DISTRICT.	Membership December, 1911.	Membership to June, 1912.	No. of meetings held.	Total attendance.	No. of papers read or addresses delivered.	Receipts.			
						Cash on hand per last report.	Members' fees.	Grants.	Receipts from excursions.
						$ c.	$ c.	$ c.	$ c.
56 Norfolk, North	237	238	16	734	11	66 08	55 50	50 00	19 90
57 Norfolk, South	140	106	12	375	20	......	24 25	50 00	8 30
58 Northumberland, West	270	187	5	1,900	31	66 80	47 25	85 00	......
59 Ontario, North	283	314	20	1,284	41	25 66	71 00	29 85	......
60 Ontario, South	192	254	25	1,685	34	106 66	62 75	50 00	......
61 Oxford, North	251	325	20	2,052	40	6 68	82 00	50 00	35 85
62 Oxford, South	362	314	17	1,350	41	35 81	80 25	50 00	6 40
63 Parry Sound, East	91	218	28	1,277	75	43 89	19 50	28 00	......
64 Parry Sound, West	120	57	8	206	8	......	15 25	25 00	......
65 Peel	359	207	4	161	9	......	......	......	......
66 Perth, South	400	345	11	1,160	32	180 72	77 75	50 00	93 85
67 Perth, North	297	236	15	1,845	32	76 88	84 25	50 00	......
68 Peterboro', East	143	96	10	1,233	32	64 84	21 50	50 00	......
69 Peterboro', West	165	123	7	265	18	97 99	28 50	50 00	......
70 Port Carling	29	24	1	175	2	......	......	......	......
71 Prescott	139	111	3	120	10	100 94	27 25	50 00	......
72 Prince Edward	169	120	12	520	16	58 01	29 00	50 00	......
73 Rainy River, South	55	66	10	450	18	22 46	4 50	25 00	......
74 Renfrew, North	72	62	7	268	14	18 24	18 00	50 00	......
75 Renfrew, South	......	74	8	376	19	139 67	18 50	50 00	31 75
76 Simcoe, Centre	381	314	21	963	34	242 92	56 80	50 00	79 50
77 Simcoe, East	133	115	8	392	23	76 01	22 50	75 00	45 65
78 Simcoe, South	140	127	12	728	29	32 77	31 75	50 00	......
79 Simcoe, West	215	234	14	1,250	35	123 35	53 50	75 00	73 43
80 Stormont and Cornwall	334	266	13	1,000	23	7 50	68 00	50 00	......
81 St. Joseph's Island	42	76	5	425	14	15 82	5 25	25 00	......
82 Temiskaming	125	25	20	1,125	45	64 53	7 60	25 00	......
83 Thunder Bay	59	137	10	540	22	25 92	1 50	......	......
84 Union	155	159	13	857	12	117 10	40 00	37 50	2 75
85 Victoria, East	171	133	10	1,143	22	48 45	42 75	50 00	5 10
86 Victoria, West	195	156	11	506	27	25 01	50 25	50 00	47 15
87 Waterloo, North	415	494	24	2,091	42	......	......	......	......
88 Waterloo, South	395	392	22	1,602	35	9 78	105 25	50 00	91 80
89 Welland	221	242	20	1,278	59	292 36	57 75	75 00	235 75
90 Wellington, Centre	120	63	5	390	11	......	14 50	50 00	......
91 Wellington, East	207	179	16	1,290	28	31 11	46 75	50 00	22 00
92 Wellington, South	166	152	6	958	8	58 12	31 75	50 00	......
93 Wellington, West	158	140	10	815	10	160 20	33 75	50 00	87 35
94 Wentworth, North	227	232	16	1,360	30	42 60	58 25	50 00	......
95 Wentworth, South	203	239	13	1,215	33	......	......	......	......
96 York, East	236	224	15	792	36	49 94	50 50	50 00	50 05
97 York, North	480	367	15	988	35	179 88	89 25	50 00	63 85
98 York, West	143	160	11	639	28	6 93	42 25	50 00	23 00
						$	$	$	$
Totals	20,096	18,358	1,230	86,460	2,655	7,012	4,072	4,295	1,763

FOR THE YEAR ENDING JUNE 30TH, 1912.—Continued.

Receipts.			Expenditure.										
Miscellaneous.	Balance due Treasurer.	Total receipts.	Due Treasurer per last report.	Expense for meetings.	Officers' salaries and expenses.	Postage and stationery.	Printing and advertising.	Lecturers' expenses and wages.	Books and Periodicals.	Miscellaneous.	Total expenditure	Balance.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
......	......	191 48	......	50 45	50 00	7 25	34 20	24 00	......	4 65	170 55	20 93	56
......	16 84	82 55	4 99	9 50	45 55	2 50	12 80	21 00	......	3 05	99 39	......	57
11 44	......	210 49	......	89 45	35 00	4 69	22 50	8 25	......	1 10	160 99	49 50	58
21 85	29 44	168 36	......	21 00	79 70	6 15	21 70	48 35	......	20 90	197 80	......	59
......	......	219 41	......	51 80	50 00	11 25	14 35	22 00	......	......	149 40	70 01	60
......	40 07	174 53	......	31 00	51 20	4 65	61 30	65 25	......	1 20	214 60	......	61
2 50	3 95	174 96	......	37 00	42 45	4 00	54 20	38 25	......	3 01	178 91	......	62
......	......	91 39	......	3 95	40 00	11 20	13 50	......	......	25	68 90	22 49	63
......	56 63	40 25	32 48	34 25	15 00	1 00	14 15	......	......	......	96 88	......	64
......	......	......	......	......	......	......	......	......	......	......	......	......	65
5 76	......	408 08	......	74 35	102 80	11 55	67 50	......	......	2 00	258 20	149 88	66
......	......	211 13	......	33 85	64 30	3 40	27 72	34 95	......	7 50	171 72	39 41	67
2 00	......	138 34	......	28 50	30 10	4 25	26 25	1 50	......	10 00	100 60	37 74	68
2 00	......	178 49	......	16 00	37 00	6 00	44 75	......	......	......	103 75	74 74	69
......	......	......	......	......	......	......	......	......	......	......	......	......	70
......	......	178 19	......	19 20	20 00	......	8 00	......	......	5 00	52 20	125 99	71
92	......	137 93	......	12 95	25 00	2 03	19 65	21 60	......	80	82 03	55 90	72
8 50	......	60 46	......	......	15 00	2 10	20 42	......	......	4 00	41 52	18 94	73
4 00	......	90 24	......	6 20	25 00	3 00	13 30	......	......	......	47 50	42 74	74
......	......	239 92	......	6 75	29 25	4 18	38 98	......	......	10 50	94 66	145 26	75
3 00	......	432 22	......	83 60	82 20	11 75	16 25	24 25	......	......	218 05	214 17	76
3 80	......	222 96	......	48 00	36 55	3 26	6 50	......	......	14 00	108 81	114 65	77
......	......	114 52	......	14 50	35 00	5 30	18 00	10 45	......	1 60	84 85	29 67	78
5 00	......	330 28	......	122 85	25 00	8 00	5 80	6 25	......	40	168 30	161 98	79
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$ 1,149	$ 180	$ 18,684	$ 165	$ 2,832	$ 3,647	$ 543	$ 2,022	$ 1,105	$ 220	$ 1,531	$ 12,069	$ 6.817	

ONTARIO FARMERS' INSTITUTE

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Institute.		Name.	P. O. Address.
Addington	President	J. Mortimer Lockhead	Centreville.
	Vice-President	Horatio I. Bell	Desmond.
	Secretary	J. B. Aylesworth	Newburgh.
Algoma, Centre	President	Henry Knight, Jr.	Sault Ste Marie.
	Vice-President	Geo. W. Hill	Sault Ste Marie.
	Secretary	J. A. Moore	Box 126 Steelton.
Algoma, East	President	R. C. McDougal	Thesselon P. O.
	Vice-President	A. J. Hopkins	Livingston Creek.
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	Vice-President	Robt. Kilpatrick	Stella.
	Secretary	W. P. Tugwell	Stella.
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	Vice-President	D. W. Miller	Glenmorris.
	Secretary	A. W. Vansickle	Onondago.
Brant, South	President	A. E. Westbrook	Oakland.
	Vice-President	Geo. H. Morris	Hatchley.
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	Vice-President	J. L. Bowers	Ripley.
	Secretary	R. J. Nelson	Paisley.
Bruce, North	President	J. H. Livingston	Hepworth.
	Vice-President	Wm. Laidlaw	Lion's Head.
	Secretary	Cecil Swale	Wiarton.
Bruce, South	President	K. McKenzie	Teeswater.
	Vice-President	S. D. A. A. Stobo	Teeswater.
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	1st Vice-President	W. A. Mitchell	Port Elgin.
	2nd Vice-President	Alex. McConnel	Burgoyne.
	Secretary	J. H. Wismer	Port Elgin.
Carleton	President	Geo. R. Bradley	Carsonby.
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	Secretary	R. H. Grant	Hazeldean.
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	Secretary	A. J. Fallis	Millbrook.
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	Vice-President	R. A. Penhale	Box 247, St. Thomas.
	Secretary	F. Leeson	Aylmer.
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	Vice-President	H. J. Hales	Dutton.
	Secretary	J. E. Pearce	Wallacetown.
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	Vice-President	Alex. St. Louis	Walkerville.
	Secretary	D. Ure	North Pelton.

Institute.		Name.	P. O. Address.
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	Vice-President	Nelson Peterson	Ruthven.
	Secretary	G. W. Coatsworth	Kingsville.
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	Vice-President	John Taylor	Latimer.
	Secretary	J. B. Quinn	Dufferin.
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	Secretary	J. P. McNaughton	Dominionville.
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	Vice-President	Joseph Goodin	Spencerville.
	Secretary	G. W. Carson	Charlieville.
Grey, Centre	President	A. Kentner	Clarksburg.
	Vice-President	Geo. Wilson	Goring.
	Secretary	J. I. Graham	Vandeleur.
Grey, North	President	Wm. Bunt	Kemble.
	Vice-President	Malcolm Rutherford	Leith.
	Secretary	A. S. Donald	Kilsyth.
Grey, South	President	Wm. Scarf	Durham.
	Vice-President	J. W. Blyth	Varney.
	Secretary	Geo. Binnie	Bunessan.
Haldimand	President	R. E. King	Decewsville.
	Vice-President	Geo. L. Miller	Varency.
	Secretary	W. L. Dunnet	Lythmore.
Halton	President	Marshall Holmes	Nassagaweya.
	Vice-President	Jas. Wilson	Milton.
	Secretary	E. F. Nixon	Ashgrove.
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	Vice-President	Jno. Robinson	Thomasburg.
	Secretary	H. S. Tucker	Chapman.
Hastings, North	President	W. E. Tummon	Crookston.
	Vice-President	James Kincaid	Madoc.
	Secretary	F. A. Comerford	Eldorado.
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	Vice-President	J. W. Cartwright	Londsboro.
	Secretary	Wm. Bailie	Dungannon.
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	Vice-President	Wm. Dean	R.F.D. No. 1 Thamesville.
	Secretary	E. C. McGeachy	Thamesville.
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	Vice-President	Harvey Imrie	Wheatley.
	Secretary	Roy Abraham	Chatham.
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	Vice-President	Jacob Willsie	Thedford.
	Secretary	E. F. Augustine	Cairo.
Lambton, West	President	J. M. Webster	Rutherford.
	Vice-President	Jno. McBean	Seckerton.
	Secretary	Robt. J. White	Colinville.
Lanark, North	President	J. C. Currie	Lammermoor P.O.
	Vice-President	Arch. Rankin	Middleville.
	Secretary	James Park	Poland.

Institute.		Name.	P. O. Address.
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	Vice-President	James Glenn	Perth.
	Secretary	Geo. Oliver	Perth.
Leeds, N. & Grenville	President	R. H. Earl	Merrickville.
	Vice-President	A. Derrick	Merrickville.
	Secretary	J. C. Jakes	Merrickville.
Leeds, South	President	W. M. Bass	Newboro.
	Vice-President	C. F. Rath	Lansdowne.
	Secretary	Freeman Britton	Gananoque.
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	Vice-President	Ira B. Hudgins	Selby.
	Secretary	Manly Jones	Napanee.
Lincoln	President	Robt. Thompson	St. Catharines.
	Vice-President	W. B. Rittenhouse	Beamsville.
	Secretary	H. W. Houser	Campden.
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	Vice-President	A. J. Wagg	Mindemoya.
	Secretary	J. P. Dunlop	Sheguiandah.
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	Vice-President	Fred Smith	Gore Bay.
	Secretary	W. O. Runnalls	Barrie Island.
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	Vice-President	J. W. Laidlaw	Milton Grove.
	Secretary	Jas. H. Wheaton	Thorndale.
Middlesex, North	President	Malcolm Veitch	Parkhill.
	Vice-President	Jno. Brown	Greenway.
	Secretary	R. R. Cameron	Ailsa Craig.
Middlesex, West	President	Alex. Douglas	Wardsville.
	Vice-President	Jas. Peters	Falconbridge.
	Secretary	Chas Macfie	Appin.
Monck	President	Frank Mingle	St. Anns.
	Vice-President	Jno. Hill	Canboro.
	Secretary	J. E. Cohoe	Wellandport.
Muskoka, Centre	President	Alfred Kay	Port Sydney.
	Vice-President	E. Hamilton	Raymond.
	Secretary	J. H. Osborne	Utterson.
Muskoka, North	President	R. J. S. Hill	Hillside.
	Vice-President	Samuel Robson	Birkendale.
	Secretary	F. A. Emberson	Hillside.
Muskoka, South	President	J. J. Beaumont	Bracebridge.
	Vice-President	Albert Goltz	Bardsville.
	Secretary	Alex. Barron	Bracebridge.
Port Carling	President	Jos. McCully	Port Carling.
	Vice-President	Chas H. Davidson	Brackenrig.
	Secretary	Jno. Davidson	Brackenrig.
Nipissing, West	President	Onesime Larocque	North Bay.
	Vice-President	Albert Depencer	North Bay.
	Secretary	W. J. Simmens	Feronia.
Norfolk, North	President	Geo. Erwin	Tyrell.
	1st Vice-President	Albert Cowan	Courtland.
	2nd Vice-President	David Duckworth	Waterford.
	Secretary	Albert Swinn	Mabee.
Norfolk, South	President	Eph. Tisdale	Carholme.
	Vice-President	John Powell	Vittoria.
	Secretary	N. S. Palmerton	Walsh.
Northumberland, West	President	W. J. Westington	Plainville.
	Vice-President	R. L. Holdsworth	Port Hope.
	Secretary	Thos. Hoskins	The Gully.
Northumberland, East	President	Milton Maybee	Trenton.
	Vice-President	T. F. Moran	Codrington.
	Secretary	Jas. A. Stewart	Menie.
Ontario, North	President	W. S. Lapp	Uxbridge.
	Vice-President	Jas. Arnold	Zephyr.
	Secretary	J. W. Widdifield	Uxbridge.

Institute.		Name.	P. O. Address.
Ontario, South	President	Hugh Pugh	Whitevale.
	Vice-President	Luther Middleton	Brougham.
	Secretary	Robt H. Cronk	Pickering.
Oxford, North	President	Wm. E. Thomson	Woodstock.
	Vice-President	A. W. Harwood	Walmer.
	Secretary	J. A. Lattimer	Woodstock.
Oxford, South	President	C. W. Budd	Woodstock.
	Vice-President	W. S. Scott	Tillsonburg.
	Secretary	B. G. Palmer	Norwich.
Parry Sound, East	President	Jno. Paget	Sundridge.
	1st Vice-President	Jas. Cole	South River.
	2nd Vice-President	G. E. Gibbon	Sundridge.
	Secretary	Thos. Bottomley	South River.
Parry Sound, West	President	J. N. Haines	Parry Sound.
	Vice-President	Jno. Hunt	Parry Sound.
	Secretary	Joseph Ryder	Parry Sound.
Peel	President	Jas. Collins	Woodhill.
	Secretary	Robt. McCulloch	Snelgrove.
Perth, North	President	J. M. McCallum	Shakespeare.
	Vice-President	H. Hemsworth	Wallace.
	Secretary	W. J. Spencer	Milverton.
Perth, South	President	James Morison	St. Mary's.
	Vice-President	Samuel Doupe	Kirkton.
	Secretary	Duncan MacVannel	St. Mary's.
Peterborough, East	President	F. Birdsall	Birdsall.
	Vice-President	E. Hawthorn	Warsaw.
	Secretary	Chas. O'Reilly	Norwood.
Peterborough, West	President	C. E. Moore	R. R. No. 2, Peterboro.
	Vice-President	A. McGregor	R. R. No. 2, Peterboro.
	Secretary	Wm. Collins	242 Romain St. Peterboro.
Prescott	President	Kenneth McRae	Vankleek Hill.
	1st Vice-President	Chas. Byers	Stepheny.
	2nd Vice-President	G. Fitzpatrick	Vankleek Hill.
	Secretary	Jas. Allison	Stardale.
Prince Edward	President	W. B. Leavens	Chisholm.
	Vice-President	P. W. Gilbert	Bloomfield.
	Secretary	A. M. Platt	Picton.
Rainy River	President	Chas. W. Hughes	Devlin.
	Vice-President	A. J. Hunter	Sleeman.
	Secretary	T. A. Boucher	Emo.
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	Vice-President	Geo. Forbes	Beachburg.
	Secretary	Wm. Headrick	Beachburg.
Renfrew, South	President	Jno. F. Blane	Renfrew, R.F.D.
	Vice-President	D. Muirhead	Renfrew, R.F.D.
	Secretary	F. MacIntyre	Renfrew, R.F.D.
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	Vice-President	Cyrus Craig	Metcalfe.
	Secretary	J. C. Stuart	Dalmeny.
Simcoe, Centre	President	Jas. McDermott	Saurin.
	Vice-President	Thos. Rankin	Wyebridge.
	Secretary	James Coutts	Midhurst.
Simcoe, East	President	Thos. Swindle	Ardtrea.
	Vice-President	C. H. Wilson	Hawkestone.
	Secretary	R. C. Hipwell	Orillia.
Simcoe, South	President	I. N. Morton	Lefroy.
	1st Vice-President	James Stephens	Newton.
	Secretary	J. A. Kidd	Cookstown.
Simcoe, West	Hon. President	Jno. McKee	Duntroon.
	President	David Smith	Smithdale.
	1st Vice-President	Jno. Smith	Duntroon.
	2nd Vice-President	Robt. Murray	Avening.
	Secretary	J. A. McDermid	Batteau, R.M.D.

Institute.		Name.	P. O. Address.
St. Joseph Island	President	Joseph Frarey	Richard's Landing.
	Vice-President	Edgar Rains	Richard's Landing.
	Secretary	C. A. Young	Richard's Landing.
Stormont	President	A. W. McIntyre	Newington.
	Vice-President	Felix McNaughton	Avonmore.
	Secretary	D. H. McDiarmid	Avonmore.
Temiskaming	President	Jno. Sharp	New Liskeard.
	Vice-President	Jos. Henderson	Milberta.
	Secretary	Thos. J. Norris	Thornloe.
Thunder Bay	President	D. C. Garver	Slate River.
	Vice-President	Jno. Edmonds	Dorion.
	Secretary	A. W. Trewin	Slate River.
Victoria, East	President	Isaac H. Fee	Mt. Pleasant.
	Vice-President	W. H. Cullis	Powles Cors.
	Secretary	Wm. Thurston	Bobcaygeon.
Victoria, West	President	Wm. Channon	Oakwood.
	Vice-President	Andrew McKay	Woodville.
	Secretary	Jas. Keith	Lindsay.
Waterloo, North	President	M. L. Weber	St. Jacobs.
	1st Vice-President	Jas. H. Woods	Winterbourne.
	2nd Vice-President	J. A. Steiss	Heidleburg.
	Secretary	Allan Shantz	Waterloo.
Waterloo, South	President	J. C. Hallman	New Dundee.
	Vice-President	Levi Masters	Haysville.
	Secretary	W. J. Douglas	Galt.
Welland	President	J. A. Zavitz	Brookfield.
	Vice-President	Nathan Day	Ridgeway.
	Secretary	W. H. Gainer	Welland.
Wellington, Centre	President	W. L. Gordon	Elora.
	Vice-President	Wm. B. McGowan	Marsville.
	Secretary	Geo. Wright	Elora.
Wellington, East	President	Alfred Hutchinson	Mt. Forest.
	Vice-President	Donald McQueen	Conn.
	Secretary	David S. Ferguson	Conn.
Wellington, South	Hon. President	Wm. Scott	Eramosa.
	1st Vice-President	Samuel Young	R.R. No. 3, Guelph
	2nd Vice-President	Jno. A. Cockburn	Puslinch.
	Secretary	G. B. Hood	Guelph.
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	Vice-President	W. C. Quickfall	Glenallan.
	Secretary	E. G. Henry	Drayton.
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	Vice-President	David Campbell	Clifford.
	Secretary	Jno. R. Scott	Clifford.
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	1st Vice-President	Wm. McFarlane	Harpers Cors.
	2nd Vice-President	Jno. Bennett	Carlisle.
	Secretary	Alfred Purnell	Puslinch.
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	Vice-President		
	Secretary	Jno. Clough	Stoney Creek.
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	Vice-President	Wm. Doherty	Agincourt.
	Secretary	A. J. Reynolds	Scarboro Jct.
York, North	President	H. E. Ross	Strange.
	Vice-President	J. A. Rose	Mt. Albert.
	Secretary	T. J. Spaulding	Aurora.
York, West	President	A. T. Orth	Kleinburg.
	Vice-President	Ed. Stonehouse	Weston R. R.
	Secretary	R. L. Crawford	Emery.

DISTRICT REPRESENTATIVES OF ONTARIO DEPARTMENT OF AGRICULTURE.

District representatives will so far as possible, attend Farmers' Institute meetings, and the officers of the Institutes should see the representative concerned and arrange with him as to the meetings which he will attend and the subjects upon which he will speak. Announcement of these should be made in the posters and folders issued as well as newspaper advertising. It is particularly desirable that representatives who have been located for only a short time should attend the Institute meetings. A representative should not be announced for meetings until the secretary concerned has a definite promise from him. If the secretary of the Institute is unable to secure the services of a district representative, and wishes the Department to send an additional speaker, application should be made to the Superintendent at as early a date as possible.

County.	*Representative.*	*Address.*
Brant	R. Schuyler	Paris.
Bruce	N. C. McKay	Walkerton.
Carleton	W. D. Jackson	Carp.
Dufferin	H. A. Dorrance	Orangeville.
Dundas	E. Bradt	Morrisburg.
Elgin	C. H. Buchanan	Dutton.
Essex	W. E. J. Edwards	Essex.
Fort William and District	G. W. Collins	Ft. William.
Frontenac	J. G. Taggart	Sydenham.
Glengarry	D. E. MacRae	Alexandria.
Grey	H. C. Duff	Markdale.
Hastings	A. D. McIntosh	Stirling.
Kent	G. P. McCrostie	Chatham.
Lambton	W. H. Porter	Petrolea.
Branch (Lambton)	R. M. Tipper	Oil Springs.
Lanark	W. Dawson	Perth.
Leeds & Grenville	W. H. Smith	Athens.
Lennox & Addington	G. B. Curran	Napanee.
Middlesex	I. B. Whale	London.
Norfolk	J. E. Smith	Simcoe.
Northumberland & Durham	R. S. Duncan	Port Hope.
Ontario	J. H. Hare	Whitby.
Peterboro	E. S. Hopkins	Norwood.
Prince Edward	A. P. MacVannel	Picton.
Sault Ste. Marie & District	A. S. Smith	Sault Ste. Marie.
Simcoe	J. Laughland	Collingwood.
Temiscamingue	C. A. Galbraith	New Liskeard.
Victoria	D. A. McKenzie	Lindsay.
Waterloo	F. C. Hart	Galt.
Welland	R. Austin	Welland.
York	J. C. Steckley	Newmarket.

SPECIAL SERIES OF MEETINGS TO BE ADDRESSED BY DISTRICT REPRESENTATIVES.

It has been thought well by the Department of Agriculture to have the District representatives in counties bordering on each other and in which the agriculture followed is more or less uniform, to address a series of meetings in each riding of the territory under their charge. These meetings will be held under the joint auspices of the Farmers' Institute and the office of the district representative, and are to take the place of Institute work in the neighborhoods visited. The representatives and the Institute officers will co-operate in advertising. The lectures will be given entirely by the district representatives, and we have every confidence that the farmers who take advantage of these meetings will be much benefited, as the speakers will be well equipped with facts and figures and illustrative and demonstrative material. Men who are spending their whole time in the interests of the agriculture of a limited territory must gather much information of value to the farmers in the locality concerned. We fully expect that these meetings will be among the most interesting and profitable of the campaign, and we appeal to the officers and directors to do all that they can to make the same a marked success.

Division "A."

Speakers:—

W. H. Porter, Petrolea.
W. E. J. Edwards, Essex.
G. H. Buchanan, Dutton.

1	Warwich	East Lambton	Feb. 18
2	Wyoming	East Lambton	“ 19
3	Brigden	West Lambton	“ 20
4	Rutherford	West Lambton	“ 21
5	Comber	North Essex	“ 25
6	Tecumseth	North Essex	“ 26
7	Leamington	South Essex	“ 27
8	Essex	South Essex	“ 28
9	Dutton	West Elgin	Mar. 4
10	Middlemarch	West Elgin	“ 5
11	Union	East Elgin	“ 6
12	Straffordville	East Elgin	“ 7

Division "B."

Speakers:—

H. C. Duff, Markdale.
J. Laughland, Collingwood.
H. A. Dorrance, Orangeville.

1	Dundalk	Centre Grey	Jan. 7
2	Durham	South Grey	“ 8
3	Markdale	Centre Grey	“ 9
4	Owen Sound	North Grey	“ 10
5	Meaford	North Grey	“ 11
6	Stayner	West Simcoe	“ 13
7	Alliston	South Simcoe	“ 14
8	Thornton	South Simcoe	“ 15
9	Orillia	East Simcoe	“ 16
10	Penetang	Centre Simcoe	“ 17
11	Orangeville	Dufferin	“ 20
12	Shelburne	Dufferin	“ 21
13	Honeywood	Dufferin	“ 22
14	Perm	Dufferin	“ 23

Division "C."

Speakers:—

E. S. Hopkins, Norwood.
D. A. McKenzie, Lindsay.
J. H. Hare, Whitby.

1	Lakefield	West Peterboro	Mar. 3
2	Stewart's Hall	West Peterboro	“ 4
3	Keene	East Peterboro	“ 5
4	Douro	East Peterboro	“ 6
5	Warsaw	East Peterboro	“ 7
6	Cameron	East Victoria	“ 10
7	Dunsford	East Victoria	“ 11
8	Hartley	West Victoria	“ 12
9	Valentia	West Victoria	“ 13
10	Lindsay	West Victoria	“ 14
11	Gamebridge	North Ontario	“ 17
12	Zephyr	North Ontario	“ 18
13	Kinsale	South Ontario	“ 19
14	Cherrywood	South Ontario	“ 20

DIVISION "D."

Speakers:—

A. D. McIntosh, Stirling.
R. S. Duncan, Port Hope.
A. P. MacVannel, Picton.

1	Eldorado	North Hastings	Nov. 25
2	Crookston	North Hastings	" 26
3	Gilead	East Hastings	" 27
4	Frankford	West Hastings	" 28
5	Wooler	East Northumberland	Dec. 2
6	Baltimore	West Northumberland	" 3
7	Bethany	East Durham	" 4
8	Bowmanville	West Durham	" 5
9	Waupoos	Prince Edward	" 16
10	Wellington	Prince Edward	" 17
11	Cherry Valley	Prince Edward	" 18
12	Demorestville	Prince Edward	" 19

INSTITUTE MEETINGS AND DELEGATES THEREFOR, 1912-13

It is usual to have afternoon and evening sessions at each place, the former at 1.30 or 2.00, and the latter at 7.30 or 8.00 o'clock. The exact hour of meeting is decided by the officers of the Institute concerned, and announcements made accordingly. "Aft." indicates an afternoon meeting only; "Evg." an evening meeting only.

REGULAR MEETINGS.

DIVISION 1.

W. D. Dyer, Columbus, Jan. 8 to Feb. 1.
C. Schuyler, Brantford, Jan. 18 to Feb. 1.
Miss Ethel Robson, Ilderton, Jan. 27 to Feb. 1.

1	Lion's Head, Town Hall	North Bruce	Jan. 8
2	Spry's, School House	North Bruce	" 9
3	Hope Bay, No. 3 School House	North Bruce	" 10
4	Wiarton, Town Hall	North Bruce (aft.)	" 11
5	Mar, School House	North Bruce (evg.)	" 11
6	Hepworth, Gates School	North Bruce (aft.)	" 13
	Spring Creek School	North Bruce (evg.)	" 13
7	Park Head	North Bruce	" 14
8	Gillies Hill, Township Hall	Centre Bruce	" 15
9	Paisley, Town Hall	Centre Bruce	" 16
10	Walkerton, Town Hall	South Bruce	" 17
11	Clifford, Town Hall	Union	" 18
12	Lavery's School House	Union	" 20
13	Holyrood, Township Hall	South Bruce	" 21
14	Lucknow, Township Hall	South Bruce	" 22
15	Londesboro', Wilson's Hall	West Huron	" 23
16	Holmesville, Temperance Hall	West Huron	" 24
17	Ballinafad, Village Hall	Halton	" 27
18	Norval, Village Hall	Halton	" 28
19	Esquesing, Village Hall	Halton	" 29
20	McCurdy's Cors., School House	Halton	" 30
21	Postville Church	Halton	" 31
22	Sheridan, Temperance Hall	Halton	Feb. 1

DIVISION 2.

W. C. Shearer, Bright, Jan. 8 to 16; 24 to Feb. 1.
W. Scarff, Durham, Jan. 8 to 11, 17 to 23.
G. S. Peart, Burlington, Jan. 22 to 28.
Mrs. W. H. Parsons, Forest, Jan. 11 to 20; 29 to Feb. 1.

1	Attwood	North Perth	Jan. 8
2	Millbank	North Perth	" 9
3	Mitchell, Town Hall	South Perth	Jan. 10 & 11
4	Thorndale, Harding's Hall	East Middlesex	Jan. 13
5	Harrietsville, Oddfellows' Hall	East Middlesex	" 14
6	Wilton Grove, Sunday School	East Middlesex	" 15
7	Ilderton, Town Hall	East Middlesex	" 16
8	Komoka, New Hall	North Middlesex	" 17
9	Coldstream, Town Hall	North Middlesex	" 18
10	Beechwood, Foresters' Hall	North Middlesex	" 20
11	Ailsa Craig, Town Hall	North Middlesex	" 21
12	Brucefield	South Huron	" 22
13	Exeter	South Huron	" 23
14	Thedford, King Edward Hall	East Lambton	" 24
15	Arkona, Town Hall	East Lambton	" 25
16	Uttoxeter, Maccabee's Hall	East Lambton	" 27
17	Camlachie, Maccabee's Hall	East Lambton	" 28
18	Petrolia, Council Chamber	West Lambton	" 29
19	Sarnia, Township Hall	West Lambton	" 30
20	Lucasville, School House	West Lambton	" 30
21	Beecher, Foresters' Hall	West Lambton	" 31
22	Courtwright, Stewart's Hall	West Lambton	Feb. 1

Division 3.

W. J. Kerr, Woodroffe, Jan. 8 to 30.
J. W. Widdifield, Uxbridge, Jan. 8 to 22.
A. Innes, Clinton, Jan. 23 to 30.
Mrs. F. W. Watts, Toronto, Jan. 8, 9.

1	Mt. Elgin, Foresters' Hall	South Oxford	Jan. 8
2	Norwich, Town Hall	South Oxford	" 9
3	Courtland, Town Hall	North Norfolk	" 10
4	Langton, Town Hall	North Norfolk	" 11
5	Delhi, Town Hall	North Norfolk	" 13
6	Vittoria, Lecture Room	South Norfolk	" 14
7	Waterford, Town Hall	North Norfolk	" 15
8	Bealton, Hall	North Norfolk	" 16
9	Talbotville, Orange Hall	West Elgin	" 17
10	Middlemarch	West Elgin	" 18
11	Middlemiss, Village Hall	West Middlesex	" 20
12	Walkers, School House	West Middlesex	" 21
13	Clachan	West Elgin	" 22
14	Eberts, Township Hall	West Kent	" 23
15	Louisville, Private Hall	West Kent	" 24
16	Kent Centre, K. C. Hall	East Kent	" 25
17	Mull, School House	East Kent	" 27
18	Morpeth, A.O.U.W. Hall	East Kent	" 28
19	Guilds, School House	East Kent	" 29
20	Leamington, Town Hall	South Essex	" 30

Division 4.

F. H. Silcox, Iona, Jan. 8 to 18; 22 to Feb. 1.
J. B. Fairbairn, Vineland, Jan. 8 to 10, 20 to 28.
Albert Swinn, Mabee, Jan. 20 to 21; Feb. 3 to 6.
Mrs. E. B. McTurk, Lucan, Jan. 11 to 18; 22 to Feb. 1.

1	Waterdown, Township Hall	North Wentworth	Jan. 8
2	Freelton, Moore's Hall	North Wentworth	" 9
3	Rockton, Township Hall	North Wentworth	" 10
4	Tranquility	North Brant	" 11
5	Cainsville, Orange Hall	North Brant	" 13
6	Onondaga, Township Hall	North Brant	" 14
7	Ohsweken, Council House	South Brant	" 15
8	Mohawk, Meth. Ch. Basement	South Brant	" 16
9	Burford, Cornish Hall	South Brant	" 17
10	Scotland, Foresters' Hall	South Brant	" 18
11	Ancaster, Town Hall	South Wentworth	" 20
12	Stoney Creek, Institute Hall	South Wentworth	" 21
13	Campden, Hodden's Hall	Lincoln	" 22
14	St. David's, Hall	Lincoln	" 23
15	Niagara Falls S., Tp. Hall	Welland	" 24
16	Willoughby, Township Hall	Welland	" 25
17	Ridgeway, Township Hall	Welland	" 27
18	Humberstone, Township Hall	Welland	" 28
19	Pelham Centre, Town Hall	Monck	" 29
20	Silverdale, School House	Monck	" 30
21	Canboro, Town Hall	Monck	" 31
22	Caistorville, Church Basement	Monck	Feb. 1
23	Gill, School House	Haldimand	" 3
24	Fisherville, Hall	Haldimand	" 4
25	Rainham Centre, Town Hall	Haldimand	" 5
26	Cheapside, Hall	Haldimand	" 6

Division 5.

R. H. McCurdy, Vienna, Jan. 8 to Feb. 5.
W. R. McDonald, Ripley, Jan. 13 to 20.
Miss M. V. Powell, Box 453, Whitby, Jan. 8 to 20; 29 to 31; Feb. 3 to 5.

1	Aberfoyle, Town Hall	South Wellington (aft.)	Jan. 8
2	Arkell, School House	South Wellington (evg.)	" 8

3	S. S. No. 3, Guelph, Tp. School House	South Wellington (evg.)	Jan. 9
4	Winterbourne, St. Andrew's	North Waterloo	" 10
5	West Montrose, Jupp's Hall	North Waterloo	" 11
6	Glenallan, Coot's Hall	West Wellington	" 13
7	Drayton, Town Hall	West Wellington	" 14
8	Rothsay, Temperance Hall	West Wellington	" 15
9	Mt. Forest, Allen's Hall	East Wellington	" 16
10	Cedarville, Orange Hall	East Wellington	" 17
11	Monticello, Orange Hall	East Wellington	" 18
12	Grand Valley, Council Chamber	East Wellington	" 20
13	Chatsworth	North Grey	" 21
14	Kilsyth	North Grey	" 2B
15	Shallow Lake	North Grey	" 23
16	Kemble	North Grey (aft.)	" 24
17	Brown's School	North Grey (evg.)	" 24
18	Annan	North Grey (aft.)	" 25
19	Leith	North Grey (evg.)	" 25
20	Bangor	North Grey	" 27
21	Strathnairn	North Grey (aft.)	" 28
22	Duntroon, S. O. S. Hall	West Simcoe	" 29
23	Batteau, School House	West Simcoe	" 30
24	New Lowell, Township Hall	West Simcoe	" 31
25	Edgar, Township Hall	East Simcoe (aft.)	Feb. 1
26	Mitchell Square, Township Hall	East Simcoe (evg.)	" 1
27	Oro Station, Township Hall	East Simcoe (aft.)	" 3
28	Shanty Bay, Township Hall	East Simcoe (evg.)	" 3
29	Stroud	South Simcoe	" 4
30	Lefroy	South Simcoe	" 5

DIVISION 6.

Gavin Barbour, Crosshill, Dec. 3 to 6.
F. H. Silcox, Iona, Dec. 16 to 21.
C. Schuyler, Brantford, Dec. 16 to 19.
Mrs. H. W. Parsons, Forest, Dec. 3 to 6, 16 to 21.

1	Bethany, Methodist Church	Centre Wellington	Dec. 3
2	Belwood, Township Hall	Centre Wellington	" 4
3	Hillsburg, Town Hall	Centre Wellington	" 5
4	Ospringe, School House	Centre Wellington	" 6
5	Kilbride, Village Hall	Halton	" 16
6	Nelson, Council Chamber	Halton	" 17
7	Weston, Town Hall	West York	" 18
8	Woodbridge, Orange Hall	West York	" 19
9	Caledon East	Peel	" 20
10	Streetsville	Peel	" 21

DIVISION 7.

J. C. Shaw, Norwich, Nov. 25 to Dec. 6.
S. G. Carlyle, Chesterville, Dec. 16 to 19.
J. F. Carpenter, Fruitland, Dec. 16 to 19.
Mrs. M. L. Woelard, Toronto, Nov. 27 to Dec. 2, 3, 6, 17 to 19.

1	Keswick, Town Hall	North York	Nov. 25
2	Aurora, Town Hall	North York	" 26
3	Thornhill, Victoria Hall	East York	" 27
4	Agincourt, Temperance Hall	East York	" 28
5	Box Grove, Foresters Hall	East York	" 29
6	Stouffville, Council Hall	East York	Dec. 2
7	Greenbank, Temperance Hall	South Ontario	" 3
8	Port Perry, Town Hall	South Ontario	" 4
9	Myrtle, Temperance Hall	South Ontario	" 5
10	Columbus, Town Hall	South Ontario	" 6
11	Nestleton, Foresters' Hall	West Durham	" 16
12	Kendal, Foresters Hall	West Durham (aft.)	" 17
13	Newtonville, S.O.T. Hall	West Durham (eve.)	" 17
14	Orono, Council Room	West Durham (aft.)	" 18
15	S. Monaghan, S.S. Hall	East Durham (aft.)	" 19
16	Bailieboro, S. E. Hall.	East Durham (evg.)	" 19

Division 8.

W. J. Gardhouse, Highfield, Nov. 27 to Dec. 4.
J. C. Stuart, Dalmeny, Ont., Nov. 27 to Dec. 4.
J. W. Clark, Cainsville, Dec. 5 to 6.
W. J. Kerr, Woodroffe, Dec. 16 to 19.
Miss B. Gilholm, Bright, Nov. 28, 29; Dec. 5, 6,

*1	Bobcaygeon, Town Hall	East Victoria	Nov. 27-28
*2	Fenelon Falls, Dickson's Hall	East Victoria	" 29-30
3	Oakwood, Township Hall	West Victoria	Dec. 2
*4	Woodville, Village Hall	West Victoria	" 3-4
5	Norwood, Town Hall	East Peterboro	" 5
6	Warsaw	East Peterboro	" 6
7	Menie	East Northumberland	" 16
8	Warkworth	East Northumberland	" 17
9	Codrington	East Northumberland	" 18
10	Grafton, Tp. Hall	West Northumberland	" 19
11	Harwood, Boyles' Hall	West Northumberland	" 20

*Short courses in Stock Judging.

Division 9.

J. W. Clarke, Cainsville, Dec. 2 to 3.
A. M. Campbell, Maxville, Dec. 4 to 18.
Miss S. Campbell, Brampton, Dec. 7 to 11.

1	Bloomfield, Town Hall	Prince Edward	Dec. 2
2	Hillier, Town Hall	Prince Edward	" 3
3	Bayside, School House	West Hastings	" 4
4	Gilberts, School House	West Hastings	" 5
5	Wallbridge, Town Hall	West Hastings	" 6
6	Clazies, School House	East Hastings	" 7
7	Melrose, Town Hall	East Hastings	" 9
8	Plainfield, Orange Hall	East Hastings	" 10
9	Thomasburg, I.O.O.F. Hall	East Hastings	" 11
10	Centreville, Town Hall	Addington	" 12
11	Newburgh, Standard Bank Hall	Addington	" 13
12	Wilton, Orange Hall	Addington	" 14
13	Napanee, Town Hall	Lennox	" 16
14	Stella, Town Hall	Amherst Island	" 17
15	Emerald, Cheese Factory	Amherst Island	" 18

Division 10.

W. C. Shearer, Bright, Nov. 28 to Dec. 18.
Mrs. F. W. Watts, Dec. 5 to 10, to 18.

1	Hartington	Frontenac	Nov. 28
2	Wolfe Island	Frontenac	" 29
3	Gananoque, Turner's Hall	South Leeds	Dec. 2
4	Newboro, Town Hall	South Leeds	" 3
5	Algonquin	South Grenville	" 4
6	Spencerville, Town Hall	South Grenville	" 5
7	Brinston, Gibson's Hall	Dundas	" 6
8	Williamburg, Boyce's Hall	Dundas	" 7
9	Heckston, Town Hall	North Leeds and Grenville	" 9
10	Kemptville	North Leeds and Grenville	" 10
11	Perth, Town Hall	South Lanark	" 11
12	MacCue, School House	South Lanark	" 12
13	Lanark, Public Hall	North Lanark	" 13
14	Middleville, Public Hall	North Lanark	" 14
15	Maberly, Town Hall	South Lanark	" 16
16	Mountain Grove, Town Hall	Centre Frontenac	" 17
17	Piccadilly, Town Hall	Centre Frontenac (aft.)	" 18
18	Reynoldston, Town Hall	Centre Frontenac (evg.)	" 18

DIVISION 11.

Clark Hamilton, Iroquois, Nov. 28 to Dec. 19.
J. C. Stuart, Dalmeny, Dec. 10, 12, 13.
Miss M. V. Powell, Whitby, Dec. 6, 7.
Miss S. Campbell, Brampton, Dec. 12, 13.

1	Berwick, Township Hall	Stormont	Dec. 2
2	Newington, Workmen's Hall	Stormont	“ 3
3	Avenmore, Beaver's Hall	Stormont	“ 4
4	Moose Creek, Gagnon's Hall	Stormont	“ 5
5	Martintown, St. Andrew's Hall	Glengarry	“ 6
6	Maxville, Public Hall	Glengarry	“ 7
7	Lochiel, Public Hall	Glengarry	“ 9
8	Vankleek Hill, Town Hall	Prescott	“ 10
9	Russell	Russell	“ 12
10	Vernon	Russell	“ 13
11	Woodlawn, Town Hall	Carleton	“ 16
12	Galetta, Temperance Hall	Carleton	“ 17
13	Lochwinnoch, School House	South Renfrew	“ 18
14	Northcote, Temperance Hall	South Renfrew	“ 19

SUPPLEMENTARY MEETINGS.

DIVISION 1.

David Bonis, Rannoch, Feb. 5 to 15.
F. E. Millen, O. A. College, Guelph, Feb. 17 to 28.
Wm. Scarf, Durham, Feb. 5 to 28.
Mrs. W. J. Hunter, Pleasant, Feb. 5 to 28.

1	Fordwich, Brown's Hall	East Huron	Feb. 5
2	Bluevale, Foresters' Hall	East Huron	“ 6
3	Jamestown, Victoria Hall	East Huron	“ 7
4	Molesworth, Orange Hall	East Huron	“ 8
5	Ethel, Township Hall	East Huron	“ 10
6	Moncrieff, School House	East Huron	“ 11
7	Walton, School	East Huron	“ 12
8	Winthrop, Calder's Hall	East Huron	“ 13
9	Harlock, School House	East Huron	“ 14
10	Belgrave, Foresters' Hall	East Huron	“ 15
11	Wingham, Town Hall	West Huron	“ 17
12	Blyth, Industry Hall	West Huron	“ 18
13	Nile, Orange Hall	West Huron	“ 19
14	Dungannon, Orange Hall	West Huron	“ 20
15	St. Helen's, Mechanics Inst. Hall	West Huron	“ 21
16	Kintail, McDonald Hall	West Huron	“ 22
17	Ripley, Township Hall	Centre Bruce, 2 days	Feb. 24, 25
18	Reed's Corners, Grange's Hall	Centre Bruce	“ 26
19	Kincardine, Town Hall	Centre Bruce	“ 27
20	Bervie, I. O. O. F. Hall	Centre Bruce	“ 28

DIVISION 2.

Clark Hamilton, Iroquois, Jan. 9 to Feb. 1.
C. Schuyler, Brantford, Jan. 9 to 15.
Mrs. M. N. Norman, Toronto, Jan. 16 to Feb. 1.

1	Tiverton, Town Hall	West Bruce	Jan. 9
2	Underwood, Town Hall	West Bruce	“ 10
3	Pt. Elgin, Town Hall	West Bruce	“ 11
4	Burgoyne, Church Vestry	West Bruce (aft)	“ 13
5	McLennan School House	West Bruce eve)	“ 13
6	Tara, Vandusen's Hall	West Bruce	“ 14
7	Allanford, Orange Hall	West Bruce	“ 15
8	Holland Centre, Township Hall	Centre Grey	“ 16
9	Walters Falls, A. O. U. W. Hall	Centre Grey	“ 17
10	Rocklyn, Agricultural Hall	Centre Grey	“ 18
11	Heathcote, Public Hall	Centre Grey	“ 20
12	Ravenna, Township Hall	Centre Grey	“ 21

13	Kimberley, Union Hall	Centre Grey	Jan. 22
14	Eugenia, Orange Hall	Centre Grey	“ 23
15	Priceville	Centre Grey	“ 24
16	Hopeville, Old Store	Centre Grey	“ 25
17	Badjeros, School House	Centre Grey	“ 27
18	Maxwell, Orange Hall	Centre Grey	“ 28
19	Rosemount, Hanna Hall	West Simcoe	“ 29
20	Everett, Orange Hall	West Simcoe	“ 30
21	Creemore, Leonard Hall	West Simcoe	“ 31
22	Singhampton, Ross's Hall	West Simcoe	Feb. 1

Division 3.

D. James, Thornhill, Nov. 25 to Dec. 6.
R. Murphy, Alliston, Dec. 17 to 19.
Mrs. W. J. Hunter, Pleasant, Nov. 25 to Dec. 6, 17, 18.

1	Midhurst, Town Hall	Centre Simcoe	Nov. 25
2	Minesing, Workman's Hall	Centre Simcoe	“ 26
3	Edenvale, Town Hall	Centre Simcoe	“ 27
4	New Flow, Watherill's Hall	Centre Simcoe	“ 28
5	Phelpston, Shanahan's Hall	Centre Simcoe	“ 29
6	Crossland, Church Hall	Centre Simcoe	“ 30
7	No. 2, School House, Hillsdale	Centre Simcoe	Dec. 2
8	Wyevale, Orange Hall	Centre Simcoe	“ 3
9	Wyebridge, Public Hall	Centre Simcoe	“ 4
10	Lafontaine, Foresters' Hall	Centre Simcoe	“ 5
11	Victoria Harbour	Centre Simcoe	“ 6
12	Uhthoff, Waring's Hall	East Simcoe (aft)	“ 17
13	Ardtrea, School House	East Simcoe (evg)	“ 17
14	Jarrett, Township Hall	East Simcoe (aft)	“ 18
15	Warminster, McKinley's Hall	East Simcoe (evg)	“ 18
16	Rugby, Temperance Hall	East Simcoe	“ 19

Division 4.

D. Johnson, Forest, Dec. 2 to 6.
H. Grose, Lefroy, Dec. 2 to 6, 13 to 19.
Mrs. E. B. McTurk, Lucan, Dec. 2 to 6; 13 to 19.

1	Brussels	East Huron	Dec. 2
2	Wroxeter	East Huron	“ 3
3	Belmore, Foresters' Hall	South Bruce	“ 4
4	Teeswater, Township Hall	South Bruce	“ 5
5	Mildmay, Township Hall	South Bruce	“ 6
6	Dromore, Russell's Hall	South Grey	“ 13
7	Holstein, Agricultural Hall	South Grey	“ 14
8	Ayton, Doeersaw's Hall	South Grey	“ 16
9	Hanover, Town Hall	South Grey	“ 17
10	Elmwood, Wildfong's Hall	South Grey and South Bruce	“ 18
11	Dornoch, I. O. O. F. Hall	South Grey	“ 19

Division 5.

C. E. Porter, Appleby, Feb. 6 to 8.
F. H. Silcox, Iona, Feb. 6 to 21.
Mrs. M. N. Norman, Toronto, Feb. 10 to 21.

1	Alvinston, Town Hall	East Lambton	Feb. 6
2	Inwood, Orange Hall	East Lambton	“ 7
3	Shetland, Town Hall	East Lambton (aft)	“ 8
4	Oakdale, School House	West Lambton	“ 10
5	Bentpath, School House	West Lambton	“ 11
6	Wilkesport, Regan's Hall	West Lambton	“ 12
7	Colinville, C. O. F. Hall	West Lambton (aft)	“ 13

8	Corunna, Proctor's Hall	West Lambton (evg)	Feb. 13
9	Sarnia, Council Chamber	West Lambton (aft)	“ 14
10	Bunyan, School House	West Lambton (evg)	“ 14
11	Parkhill, Town Hall	North Middlesex	“ 17
12	Greenway, Wilson's Hall	North Middlesex	“ 18
13	Mt. Carmel, Mt. Carmel Hall	North Middlesex	“ 19
14	West McGillivray, Town Hall	North Middlesex	“ 20
15	Clandeboye, Town Hall	North Middlesex	“ 21

DIVISION 6.

Robt. Murphy, Alliston, Feb. 5 to 8.
Clark Hamilton, Iroquois, Feb. 5 to Mar. 4.
Gavin Barbour, Crosshill, Feb. 19 to Mar. 4.
Miss B. Gilholm, Bright, Feb. 5 to 25.

1	Clifford, Town Hall	Union	Feb. 5
2	Lakelet, Derrock Hall	Union	“ 6
3	Drew, Temperance Hall	Union	“ 7
4	Teviotdale, Foresters' Hall	Union	“ 8
5	Gowanston	North Perth (aft)	“ 10
6	Britton, School House	North Perth (evg)	“ 10
7	Carthage, Foresters' Hall	North Perth	“ 11
8	Milverton, Cook's Hall	North Perth	Feb. 12 and 13
9	Monkton, Hall	North Perth	Feb. 14
10	Kinkora, Town Hall	North Perth (aft	“ 15
11	Rostock, Town Hall	North Perth (aft)	“ 17
12	Shakespeare, Temperance Hall	North Perth	“ 18
13	Tavistock, Opera House	South Perth	“ 19
14	St. Pauls, Township Hall	South Perth	“ 20
15	Sebringville, Foresters' Hall	South Perth	“ 21
16	Fullerton, Township Hall	South Perth	“ 22
17	Staffa, Town Hall	South Perth	“ 24
18	Kirkton, Aberdeen Hall	South Perth	“ 25
19	Farquhar	South Huron	“ 26
20	Hensall, McDonald's Hall	South Huron	“ 27
21	Varna	South Huron	“ 28
22	Seaforth	South Huron	Mar. 1
23	Dashwood, B. Zimmer's Hall	South Huron	“ 3
24	Grand Bend	South Huron	“ 4

DIVISION 7.

S. G. Carlyle, Chesterville, Feb. 5 to 27.
C. Schuyler, Brantford, Feb. 5 to 15.
Mrs. H. W. Parsons, Forest, Feb. 6 to 22.

1	Princeton, Town Hall	North Oxford	Feb. 5
2	Innerkip, Foresters' Hall	North Oxford	“ 6
3	Plattsville, Town Hall	North Oxford	“ 7
4	Cassell, Cheese Factory	North Oxford	“ 8
5	Hickson, Town Hall	North Oxford	“ 10
6	Braemar, Gospel Hall	North Oxford	“ 11
7	Embro, Town Hall	North Oxford	“ 12
8	Harrington, Hall	North Oxford	“ 13
9	Lakeside, Hall	North Oxford	“ 14
10	Thamesford, Foresters' Hall	North Oxford	“ 15
11	Wellburn, Foresters' Hall	East Middlesex	“ 17
12	The Grove, S. S. Hall	East Middlesex	“ 18
13	Hyde Park, Foresters' Hall	East Middlesex	“ 19
14	Byron, Town Hall	East Middlesex	“ 20
15	Derwent, School House	East Middlesex	“ 21
16	Crampton, Gorman's Hall	East Middlesex (aft)	“ 22
17	Mt. Brydges, Town Hall	West Middlesex	“ 24
18	Appin, Town Hall	West Middlesex	“ 25
19	Glencoe, Town Hall	West Middlesex	“ 26
20	Wardsville, Town Hall	West Middlesex	“ 27

DIVISION 8.

J. N. Paget, Canboro, Feb. 4 to 11.
Henry Grose, Lefroy, Feb. 4 to 26.
J. W. Hyatt, West Lake, Feb. 20 to 26.
Dr. Annie Backus, Aylmer, Feb. 12 to 26.

1	Eden	East Elgin	Feb. 4
2	Mt. Salem, R. T. Hall	East Elgin	“ 5
3	Sparta, Town Hall	East Elgin	“ 6
4	Mapleton, School House	East Elgin	“ 7
5	Shedden	West Elgin	“ 10
6	West Lorne, Town Hall	West Elgin	“ 11
7	Highgate, Township Hall	East Kent	“ 12
8	Thamesville, Town Hall	East Kent	“ 13
9	Botany, Botany Church	East Kent	“ 14
10	Kent Bridge, Langford Hill	East Kent	“ 17
11	Croton, Young's Hall	East Kent	“ 18
12	Wabash, Foresters' Hall	East Kent	“ 19
13	Badoon, Church Hall	West Kent	“ 20
14	Cedar Springs, Private Hall	West Kent	“ 21
15	Merlin, Agricultural Hall	West Kent	“ 22
16	Fletcher, Foresters' Hall	West Kent	“ 24
17	Valetta, Township Hall	West Kent	“ 25
18	Wheatley, Gibson's Hall	South Essex and West Kent	“ 26

DIVISION 8A.

J. W. Clark, Cainsville, Feb. 6 to 18.
W. J. Stinson, Burlington, Feb. 6 to 18.
Miss M. V. Powell, Whitby, Feb. 6 to 11.

1	Wheatley, Gibson's Hall	South Essex	Feb. 10
2	Kingsville, Town Hall	South Essex	“ 11
3	Cottam, Town Hall	South Essex	“ 12
4	Harrow, Town Hall	South Essex	“ 13
5	Amherstburg, Town Hall	South Essex	“ 14
6	Woodslee, St. Laurence Hall	North Essex	“ 17
7	Oldcastle, Town Hall	North Essex	“ 18
8	Canard, C. M. B. A.	North Essex (aft)	“ 19
9	St. Louis, School House	North Essex (eve)	“ 19
10	Bell River, Town Hall	North Essex	“ 20
11	St. Joachim, Town Hall	North Essex	“ 21

DIVISION 9.

W. C. Shearer, Bright, Feb. 5 to Mar. 5.
C. Schuyler, Brantford, Feb. 17 to 25.
Miss S. Campbell, Brampton, Feb. 5 to 15; 26 to Mar. 5.

1	McNaught's School	South Brant	Feb. 5
2	Falkland, Holbert's Hall	South Brant	“ 6
3	Cathcart, Foresters' Hall	South Brant	“ 7
4	New Durham, Con. Ch. Basement	South Brant	“ 8
5	Burtch, School House	South Brant	“ 10
6	E. Oakland, School House	South Brant	“ 11
7	Hartford, Hall	Haldimand	“ 12
8	Springvale, I. O. F. Hall	Haldimand	“ 13
9	Canfield, Town Hall	Haldimand	“ 14
10	Sandusk, Hall	Haldimand	“ 15
11	Port Dover, Town Hall	South Norfolk	“ 17
12	Walsh, Town Hall	South Norfolk	“ 18
13	Carholm, Bowyer's Hall	South Norfolk	“ 19
14	Fairgrounds, Town Hall	South Norfolk	“ 20
15	Guysboro, Orange Hall	North Norfolk	“ 21
16	Tyrrell, Hall	North Norfolk	“ 22
17	Windham Centre, Town Hall	North Norfolk	“ 24

18	Kelvin, Hall	North Norfolk	Feb. 25
19	Burgessville, Odd Fellows' Hall	South Oxford	“ 26
20	Currie, A. O.U. W. Hall	South Oxford	“ 27
21	Beachville, Town Hall	South Oxford	“ 28
22	North Oxford, Township Hall	South Oxford	Mar. 1
23	Folden's Hall	South Oxford	“ 3
24	Brownsville, Town Hall	South Oxford	“ 4
25	Springford, Town Hall	South Oxford	“ 5

DIVISION 10.

A. E. Calnan, Allisonville, Feb. 4 to 21.
W. J. Kerr, Woodroffe, Feb. 14 to Mar. 6.
R. H. McCurdy, Vienna, Feb. 22 to Mar. 6.
Mrs. F. W. Watts, Toronto, Feb. 5 to Mar. 6.

1	Millgrove, Town Hall	North Wentworth	Feb. 4
2	Carlisle, Orange Hall	North Wentworth	“ 5
3	Westover, Odd Fellows' Hall	North Wentworth	“ 6
4	Kirkwall, School House	North Wentworth	“ 7
5	Sheffield, Township Hall	North Wentworth (aft)	“ 8
6	Smithville, Brant's Hall	Monck	“ 10
7	Wellandport, Misener's Hall	Monck	“ 11
8	Attercliffe Sta., Lout's Hall	Monck	“ 12
9	Marshville, Town Hall	Monck	“ 13
10	Brookfield, School House	Welland	“ 14
11	Stevensville, Public Hall	Welland	“ 15
12	Bowen Road, School House	Welland	“ 17
13	Crowland, Township Hall	Welland	“ 18
14	Quaker Road, School House	Welland	“ 19
15	Allanburg, Township Hall	Welland	“ 20
16	South End, School House	Welland	“ 21
17	Virgil, Public Hall	Lincoln	“ 22
18	Grantham, Township Hall	Lincoln	“ 24
19	Jordan Station, Maccabee's Hall	Lincoln	“ 25
20	Beamsville, Town Hall	Lincoln	“ 26
21	Winona, Institute Hall	South Wentworth	“ 27
22	Tapleytown, Public Hall	South Wentworth	“ 28
23	Binbrook, Public Hall	South Wentworth	Mar. 1
24	Hannon, Lidy's Hall	South Wentworth	“ 3
25	Glanford, Town Hall	South Wentworth	“ 4
26	Carluke, School House	South Wentworth	“ 5
27	Jerseyville, Lee's Hall	South Wentworth	“ 6

DIVISION 12.

D. James, Thornhill, Jan. 8 to Feb. 10.
R. Murphy, Rosemont, Jan. 23 to Feb. 10.
Dr. Annie Backus, Aylmer, Jan. 8 to Feb. 10.

1	Ivy, Orange Hall	South Simcoe	Jan. 8
2	Elmgrove, Orange Hall	South Simcoe	“ 9
3	Newton Robinson, Orange Hall	South Simcoe	“ 10
4	Bond Head, Orange Hall	South Simcoe	“ 11
5	Schomberg, Market Hall	North York	“ 13
6	Kettleby, Temperance Hall	North York	“ 14
7	Queensville, Presbyterian Hall	North York	“ 15
8	Belhaven, Town Hall	North York	“ 16
9	Mt. Albert, Presbyterian Hall	North York	“ 17
10	Pine Orchard, Temperance Hall	North York	“ 18
11	Vandorf, Town Hall	North York	“ 20
12	King, Town Hall	North York	“ 21
13	Nobleton, Music Hall	North York	“ 22
14	Bolton	Peel	“ 23
15	Castlemore	Peel	“ 24
16	Cooksville	Peel	“ 27
17	Churchville	Peel	“ 28

18	Cheltenham	Peel	Jan. 29
19	Caledon	Peel	" 30
20	Belfountain	Peel	" 31
21	Alma, Hall	West Wellington	Feb. 3
22	Moorefield, Township Hall	West Wellington	" 4
23	Palmerston, Town Hall	West Wellington	" 5
24	Conn, Orange Hall	East Wellington (aft)	" 6
	School House	East Wellington (evg)	" 6
25	Kenilworth	East Wellington	" 7
26	Arthur, Town Hall	East Wellington	" 8
27	Damascus, Township Hall	East Wellington	" 10

Division 13.

Gavin Barbour, Crosshill, Jan. 8 to Feb. 4.
Mrs. F. W. Watts, Toronto, Jan. 21, 22, 25 to Feb. 4.

1	Jessopville, Church Hall	Dufferin (aft)	Jan. 8
2	Keldon, Church Hall	Dufferin (eve)	" 8
3	Riverview, School House	Dufferin (aft)	" 9
4	Corbetton, Orange Hall	Dufferin (eve.)	" 9
5	Hornings Mills, Workmen's Hall	Dufferin	" 10
6	Whitfield, Orange Hall	Dufferin	" 11
7	Violet Hill, Orange Hall	Dufferin	" 13
8	Granger, School House	Dufferin (aft)	" 14
9	Monte Centre, Council Chamber	Dufferin (eve)	" 14
10	Camilla, Harshaw's Hall	Dufferin	" 15
11	Whittington, School House	Dufferin	" 16
12	Laurel, Township Hall	Dufferin	" 17
13	Kleinburg, Temperance Hall	West York	" 20
14	Thistleton, Township Hall	West York	" 21
15	Islington, Town Hall	West York	" 22
16	Edgley	West York	" 23
17	Elia, Foresters' Hall	West York	" 24
18	Maple, Masonic Hall	West York (aft)	" 25
19	Richmond Hill, Lorne Hall	East York	" 27
20	Victoria Sq., Public Hall	East York	" 28
21	Willowdale, Public Hall	East York	" 29
22	Wexford, Methodist Church	East York	" 30
23	Malvern, Callender's Hall	East York	" 31
24	Highland Creek, Public Hall	East York	Feb. 1
25	Scarboro Jct., Bent's Hall	East York	" 3
26	Unionville, Victoria Hall	East York	" 4

Division 14.

Speaker to be arranged for, Jan. 8 to Feb. 1.
R. E. White, Balderson, Jan. 8 to 22.
Miss S. Campbell, Brampton, Jan. 8 to Feb. 1.

1	Altona, School House	North Ontario	Jan. 8
2	Goodwood, Town Hall	North Ontario	" 9
3	Uxbridge, Market Hall	North Ontario	" 10
4	Sandford, I. O. F. Hall	North Ontario	" 11
5	Beaverton, Town Hall	North Ontario	" 13
6	Brechin, School House	North Ontario	" 14
7	Udney, Orange Hall	North Ontario	" 15
8	Little Britain, Temperance Hall	West Victoria	" 16
9	Valentia, Foresters' Hall	West Victoria	" 17
10	Hartley, Orange Hall	West Victoria	" 18
11	Burnt River, Orange Hall	East Victoria	" 20
12	Lindsay, Town Hall	West Victoria	" 21
13	Omemee, Town Hall	East Victoria	" 22
14	Mount Pleasant, I.O.F. Hall	East Durham (aft.)	" 23
15	Cavanville, Old Church	East Durham (evg.)	" 23
16	Pontypool, Orange Hall	East Durham (aft.)	" 24
17	Manver's Station, Orange Hall	East Durham (evg.)	" 24

18	Elizabethville, Orange Hall	East Durham (aft.)	Jan. 27
19	Garden Hill, Orange Hall	East Durham (evg.)	“ 27
20	Canton, S.S. Hall	East Durham	“ 28
21	Morrish, S.S. Hall	East Durham	“ 29
22	Ebenezer, S.S. Room	West Durham	“ 30
23	Solina, S.O.T. Hall	West Durham	“ 31
24	Tyrone, S.O.T. Hall	West Durham	Feb. 1

Division 15.

S. G. Carlyle, Chesterville, Jan. 8 to Jan. 31.
D. Johnson, Forest, Jan. 25 to Feb. 6.
Mrs. W. J. Hunter, Pleasant, Jan. 15 to 24, 29 to 31.

1	Ennismore, Township Hall	West Peterboro	Jan. 8
2	Fourth Line, Temperance Hall	West Peterboro	“ 9
3	Lakefield	West Peterboro	“ 10
4	Duoro, Old Church	East Peterboro	“ 11
5	Westwood, Town Hall	East Peterboro	“ 13
6	Havelock, Town Hall	East Peterboro	“ 14
7	Tweed, Town Hall	East Hastings	“ 15
8	Roslin, Chosen Friends' Hall	East Hastings	“ 16
9	Philipston, I.O.F. Hall	East Hastings	“ 17
10	Halston, School House	East Hastings	“ 18
11	Palmer, School House	East Hastings	“ 20
12	Foxboro, School House	East Hastings	“ 21
13	Turners, School House	West Hastings	“ 22
14	River Valley, School House	West Hastings	“ 23
15	Hoyles' School House	West Hastings	“ 24
16	Brighton	East Northumberland	“ 25
17	Dundonald	East Northumberland	“ 27
18	Castleton	East Northumberland	“ 28
19	Roseneath, Township Hall	West Northumberland	“ 29
20	Centreton, Meth. S. S. Hall	West Northumberland	“ 30
21	Coldsprings, Tp. Hall	West Northumberland	“ 31
22	Whitby	South Ontario	Feb. 3
23	Kinsale	South Ontario	“ 4
24	Whitevale	South Ontario	“ 5
25	Pickering	South Ontario	“ 6

Division 16.

J. C. Shaw, Norwich, Jan. 8 to Feb. 4.
Miss B. Gilholm, Bright, Jan. 10 to 15.
Mrs. W. J. Hunter, Pleasant, Jan. 28.

1	Stirling, Town Hall	North Hastings	Jan. 8
2	Springbrook, Foresters' Hall	North Hastings	“ 9
3	Marmora, Orange Hall	North Hastings	“ 10
4	Eldorado, Town Hall	North Hastings	“ 11
5	Queensboro, Orange Hall	North Hastings	“ 13
6	Madoc, Town Hall	North Hastings	“ 14
7	Ivanhoe, Orange Hall	North Hastings	“ 15
8	Moira, Town Hall	North Hastings	“ 16
9	Arden, Town Hall	Centre Frontenac	“ 17
10	Wagerville, School House	Centre Frontenac	“ 18
11	Tamworth, Town Hall	Addington	“ 20
12	Enterprise, Hinch's Hall	Addington	“ 21
13	Sydenham, Town Hall	Frontenac	“ 22
14	Inverary, Agricultural Hall	Frontenac	“ 23
15	Dufferin, Orange Hall	Frontenac	“ 24
16	Lansdowne, Town Hall	South Leeds	“ 25
17	Mallorytown	South Leeds	“ 27
18	Delta, Town Hall	South Leeds	“ 28
19	Cataraqui, Town Hall	Frontenac	“ 29
20	Odessa, Town Hall	Lennox	“ 30
21	Switzerville, School House	Lennox	“ 31
22	Selby, Town Hall	Lennox	Feb. 1
23	Sillsville, Town Hall	Lennox	“ 3
24	Adolphustown, Town Hall	Lennox	“ 4

DIVISION 17.

Henry Grose, Lefroy, Jan. 8 to 28.
G. W. Fortier, Clarence Creek, Jan. 29, 30.
R. Ness, Jan. 20 to 22.
Miss B. Gilholm, Bright, Jan. 17, 18.

1	Roebuck, School House	South Grenville	Jan. 8
2	Maynard, Church Basement	South Grenville	" 9
3	Brouseville, School House	South Grenville	" 10
4	Shanly, Workmen's Hall	South Grenville	" 11
5	Ventnor, School House	South Grenville	" 13
6	Inkerman	Dundas	" 17
7	Winchester	Dundas	" 18
8	Cornwall Centre, Township Hall	Stormont	" 20
9	Osnabruck, Township Hall	Stormont	" 21
10	Aultsville, Fraternity Hall	Stormont	" 22
11	Williamstown, Public Hall	Glengarry	" 23
12	North Lancaster, McDonald's Hall	Glengarry	" 24
13	Dunvegan, McLeod's Hall	Glengarry	" 25
14	Rockland	Russell	" 27
15	Cumberland	Russell	" 28
16	Plantaganet	Prescott	" 29
17	Curran	Prescott	" 30

DIVISION 18.

J. C. Stuart, Dalmeny, Jan. 7 to 11.
A. M. Campbell, Maxville, Jan. 13 to Feb. 6.
F. E. Millen, O.A.C., Guelph, Jan. 22 to Feb. 6.
Mrs. M. L. Woelard, Toronto, Jan. 22 to 24; Jan. 28 to Feb. 1.

1	Elphin, Public Hall	North Lanark	Jan. 7
2	Watson's Cors. Temperance Hall	North Lanark	" 8
3	Poland, Private Hall	North Lanark	" 9
4	Hopetown, Temperance Hall	North Lanark	" 10
5	Balderson, School House	South Lanark	" 11
6	Drummond, Orange Hall	South Lanark	" 13
7	Richardson, School House	South Lanark	" 14
8	Merricksville,	North Leeds and Grenville	" 18
9	Acton's Corners	North Leeds and Grenville	20
10	Patterson's Corners	North Leeds and Grenville	" 21
11	North Gower, Town Hall	Carleton	" 22
12	Kars, Public Hall	Carleton	" 23
13	Manotick, Harmony Hall	Carleton	" 24
14	Ashton, Public Hall	Carleton (aft.)	" 25
15	South March, Town Hall	Carleton	" 27
16	Carp, Town Hall	Carleton	" 28
17	Queen's Line, School House	North Renfrew	" 29
18	Beachburg, Orange Hall	North Renfrew	" 30
19	Westmeath, Public Hall	North Renfrew	" 31
20	Alice, Pres. Church	North Renfrew	Feb. 1
21	Eganville, Town Hall	South Renfrew	" 3
22	Grattan, School House	South Renfrew	" 4
23	Burnstown, Temp. Hall	South Renfrew	" 5
24	Calabogie, Town Hall	South Renfrew	" 6

SPEAKERS AND SUBJECTS.

Barbour, Gavin, Crosshill.—Mr. Barbour is representative of a large number of farmers who have succeeded, by hard labour and a thorough knowledge of the lines of farming followed, in increasing the productivity of the farm and making many improvements, while at the same time paying off obligations.

Mr. Barbour has been an acceptable Institute worker for several years. He is particularly well qualified to give practical demonstrations in the judging of beef cattle. The young farmers especially should benefit from Mr. Barbour's addresses and demonstrations.

Subjects:—

"Soil Cultivation and Control of Soil Moisture."
"Beef Cattle."
"Draught Horses and How to Raise Them."
"Corn and the Silo."
"How to Grow Crops in a Dry Season."

Evening: "Farmers and their Sons."
"Present Day Needs of Ontario Agriculture."

Bonis, David, Rannoch.—Mr. Bonis has not only successfully operated from two to five hundred acres of land during his twenty-five years' experience in agriculture, but taken an active part in municipal improvements, particularly good roads. His addresses on corn and ensilage are of particular value to Ontario farmers.

Subjects:—

"Building Good Roads."
"Working Out a County Good Roads System."
"Corn for Ensilage."
"Alfalfa."
"Fattening Cattle: Grazing *vs.* Stabling."

Brethour, J. E., Burford.—Mr. Brethour is one of our best known breeders and exhibitors of pure-bred swine. He is qualified to give demonstrations on the judging of Light Horses, Dairy Cattle, and Swine, and to address the farmers on desirable types, breeding, and care of these classes of stock.

Bright, John, Myrtle.—Mr. Bright is one of the best and most favorably known of our live stock breeders. We are fortunate in being able to secure his services for Institute and Short Course work this winter. Mr. Bright is qualified to give instruction in the judging of Heavy Horses, Light Horses, Beef Cattle, and Sheep.

Subjects:—

"Breeding and Feeding of Horses."
"Breeding and Feeding of Beef Cattle."
"Cultivation of the Soil and Soil Moisture."
"Growing of Alfalfa and Its Value as Feed."

Calnan, A. E., Allisonville.—Mr. Calnan is a dairyman and a specialist in the production of high-class seed corn. For years he has been prominently connected with one of the leading factories in Prince Edward County, which has become famous for its high quality of cheese. He is well qualified to talk on general farming, and is appreciated by those who earnestly wish to make the best of grain and dairy products.

Subjects:—

"The Building and Maintenance of the Dairy Herd."
"The Raising of Fodder for Dairy Cattle."
"Improvement of Crops by Seed Selection."
"The Cultivation of the Soil."
"The Dairy Industry."

Evening: "Our Canadian Heritage."
"Ontario Agriculture."

CAMPBELL, A. M., MAXVILLE.—Mr. Campbell is a successful dairyman and general farmer. His practical grasp of the subjects announced, and the clear and forceful manner in which he imparts information, render him a valuable man in Institute work.

Subjects:—

"The Breeding of Dairy Cattle."
"Care and Feeding of the Dairy Cow."
"Cultivation of Corn and the Silo."
"Farm Management."

Evening: "The Bright Side of Farm Life."

CARLYLE, S. G., Chesterville.—Mr. Carlyle is one of the progressive farmers of Dundas County who has specialized in heavy horses and dairy cattle. He is thoroughly practical in his work, and has the faculty of giving addresses and answering questions in a manner most satisfactory to the farmer.

Subjects:—

"The Breeding of Horses in Ontario."
"The Rearing, Breeding and Feeding a Dairy Herd on a Balanced Ration grown on our Ontario Farms."
"Some of the Advantages of Farm Life in Ontario."

CARPENTER, J. F., Fruitland.—Mr. Carpenter is a graduate of the Ontario Agricultural College, and one of the most practical fruit growers of the Niagara District. He has spent the past three years as a Fruit Instructor in British Columbia, where he gave eminent satisfaction. He has also travelled extensively throughout the fruit-growing districts of the States of Washington, Orgeon, and California. His extensive acquaintance with the fruit-growing areas and conditions of the West, and practical knowledge of conditions in this Province, fit him particularly well to give advice to Ontario fruit-growers.

Subjects:—

"Planting and Care of the Young Orchard."
"Soil Cultivation and Fertility."
"Pruning of Orchards."
"Orchard Pests and their Control."
"Sprays and Spraying."
"Cover Crops."
"Culture of Small Fruits."

CLARK, J. W., CAINSVILLE.—Mr. Clark is one of the largest poultry breeders in Ontario, and has won many prizes for dressed poultry at the Winter Fair, Guelph, including the sweepstakes. He is a strong advocate of utility breeds for the farmer. For two years Mr. Clark was poultry instructor in an American State Agricultural College. He is also a breeder of pure-bred hogs of the bacon type; has had several years' experience in growing alfalfa, and has also a large apiary. Mr. Clark has given considerable attention to the production of good seed and methods of identification and eradication of weeds. After four years' work on an apple orchard, he increased the yield from 100 barrels of inferior fruit to 400 barrels of a choice product. In 1909 his apiary netted a two-ton yield. Mr. Clark will explain his methods to the Institutes.

Subjects:—

"Growing Alfalfa."
"Commercial Apple Growing—How to Make it Pay."
"Growing Small Fruits—Strawberries, Raspberries, Currants, etc."
"Importance of Seed Selection."
"Commercial Fertilizers—Do They Pay?"

Evening: "Poultry: Selecting; Feeding; Hatching, Natural and Artificial; Rearing; Fattening; Housing."
"Care of an Apiary."

Dempsey, W. H., Trenton, Ont.—Mr. Dempsey is one of the most prominent fruit growers in the Province. For ten years he had charge of the Fruit Experiment Station at Trenton, and has served as a Director of the Ontario Fruit Growers' Association.

Subjects:—

"Nursery Stock and the Care of the Young Orchard."
"Spraying."
"Packing and Marketing of Fruit."

Duke, J. O., Ruthven.—Mrs. Duke is a successful farmer in Kent County, and has given special attention to corn breeding and seed selection. His addresses, being founded on practical experience, are of much value to those who hear them.

Subjects:—

"Corn Growing."
"Improvement of Seed."
"The Peach Industry."
"Apple Culture in Western Ontario."
"Tile Drainage."

Evening: "Education for Farmers' Boys and Girls."
"Home Life on the Farm."
"Business End of Farming."

Dyer, Wm. D., B.S.A., Columbus.—Mr. Dyer is one of the successful farmers of South Ontario. His course at the College has been put to good use in making the "old farm pay." He has an up-to-date equipment, and is following common-sense, advanced methods in all his work.

Subjects:—

"Rotation of Crops."
"Farm Buildings."
"General Care of Farm Stock."
"The Production of Milk."
"The Bacon Hog."

Fairbairn, J. B., Vineland.—As proprietor of the Summerhill Fruit Farm, Mr. Fairbairn has had a very successful experience in fruit growing. He was associated with College work at the Ontario Agricultural College for a number of years and has acted as fruit inspector in his district this year. Mr. Fairbairn is prepared to give valuable advice on controlling fruit diseases and on general orchard work.

Subjects:—

"Peach Diseases."
"Identification and Treatment of San Jose Scale."
"Potato Growing."

Farmer, G. H., Steelton.—Mr. Farmer has lived in Algoma for twenty-eight years, and for the past twenty years has been identified with nearly every progressive agricultural movement in his section, especially Institutes and Farmers' Clubs, pure seed, a better class of stock, and growing alfalfa. His experience and observations will be found of special value to the farmers who work under similar conditions, and especially to those who are beginners.

Subjects:—
"Weeds and How to Eradicate Them."
"Farm Drainage."
"Seed Selection."
"Growing Alfalfa in New Ontario."
"Selection of a Dairy Cow."

Evening: "Mistakes in Farming."

Fisher, W. F. W., Burlington.—Mr. Fisher is a large fruit grower, strawberries and pears being his special lines. He has one of the best dwarf pear orchards in Ontario, as well as a large orchard of standard pears. Besides this he has a mixed orchard of pears and apples. Mr. Fisher is secretary and manager of the Burlington Fruit Growers' Association, one of the oldest co-operative associations in the Province. Mr. Fisher is much in demand as a speaker at the special Fruit Institutes, and is prepared to discuss all phases of practical fruit growing.

Subjects:—

"Cultivation of the Orchard."
"Pruning and Grafting."
"Spraying."

Fortier, G. W., Clarence Creek.—Mr. Fortier is the proprietor of an exceedingly up-to-date poultry plant and has been making this branch of farming pay handsome dividends. He is deeply interested in Institute work, and as he speaks both French and English he should be a valuable acquisition to the Institute staff.

Subjects:—

"The Dairy Herd."
"Poultry Raising."

Gardhouse, John, Highfield.—Mr. Gardhouse is a well-known breeder of Shire Horses, Shorthorn Cattle and Long-wool Sheep. All of the prize lists of our large fairs testify to his ability to raise high-class stock. He raises most of the food for his pure-bred stock, and is prepared to tell how he cultivates his land, plants his crop, and mixes his foods so as to secure the best results from his live stock. Mr. Gardhouse will be found of special value to those Institutes where the officers wish for practical work on heavy horses, beef cattle, and sheep.

Subjects:—

"Horse Breeding for Profit."
"Care and Management of Horses."
"How to Select and Feed Beef Cattle."
"Care and Management of Sheep."
"Raising Feed for Live Stock."

Evening: "How to Improve Present Farm Conditions."
"How to Interest the Young People in the Farm."

Gardhouse, Wm. J., Highfield, Ont.—Mr. Gardhouse is the son of John Gardhouse, so well and favorably known to live stock men throughout the Dominion, and, although a young man, has already had considerable experience in the judging of live stock at fall fairs. He is a most successful farmer and an excellent judge of heavy horses and beef cattle. He will devote more or less time during the coming winter to Short Course work as well as regular Institute work.

Subjects:—

"Conformation and Judging of Heavy Horses, Beef Cattle and Sheep."
"Cheap Foods for Farm Stock."
"Type in Live Stock."

Grierson, R. W., Oshawa.—Mr. Grierson is a fruit grower of prominence. He has been a valuable worker in connection with Institute and special fruit meetings for a number of years.

Subjects:—

"Producing Apples, and Co-operation in Selling."
"Rotation of Crops."
"Feeding Beef Cattle."
An evening subject.

Groh, Anson, Preston.—Mr. Groh has demonstrated how a very ordinary farm can be made a money-maker to its owner at the same time that the fertility is being increased and improvements paid for. Mr. Groh has given close attention to farm forestry, a subject of importance to Ontario farmers. He has nine years' continuous daily milk records of his herd. His experience in building silos, stables, walls and tanks with cement, and in the use of gasoline engines, renders his instruction on these lines of special value to farmers.

Subjects:—

"Farm Forestry."
"Lucerne and other Clovers."
"Soil Problems."
"Corn and the Silo."
"Fertility of the Soil and Conservation of Moisture."
"Systematic Rotation of Farm Crops."
"Care and Management of Dairy Cattle and Hogs."

Evening: "The Stairway to Success."
"Three Generations in Waterloo County."

Grose, Henry, Lefroy.—Mr. Grose is the owner of a first-class farm in Simcoe County, and has been eminently successful in general farming. He has the happy faculty of presenting hard facts in a pleasing manner, and his address to boys on the farm is very instructive and uplifting. Mr. Grose has attended Institute meetings for six seasons with acceptance, and his services should be of special value in those sections where mixed farming is followed.

Subjects:—

"How to Increase and Maintain the Fertility of the Soil."
"Selection of Seed."
"Home Dairy Work."
"The Growing of Clover."

Evening: "Benefits of Institute Work."
"The Canadian Boy and Girl."

Hallman, A. C., Breslau.—Mr. Hallman is one of our most experienced and successful Institute lecturers, and Live Stock demonstrators. He is a successful farmer and stock breeder in Waterloo County, being well known as a breeder of high-class Holstein-Friesian cattle and Tamworth swine, and a winner of many prizes at our leading exhibitions. He has gained a national reputation for judging dairy cattle and swine, having judged at nearly all the leading exhibitions in Canada from the Atlantic to the Pacific, and his services are in constant demand.

Subjects:—

"How to Improve our Live Stock, their Care and Feeding."
"Successful Management of Swine and the Export Bacon Trade."
"Cultivation of Corn and the Cilo."
"Soil Fertility, Cultivation, and Conservation of Soil Moisture."
"Modern Methods in Haymaking."
"Hints on Remodelling Stables, and the Value of Cement."

Evening: "Food Problems," and "High Cost of Living."

Hamilton, Clark, Dundela.—Mr. Hamilton, since attending the Ontario Agricultural College eight years ago, has been actively engaged in managing a two-hundred-acre farm upon which pure bred Holstein-Friesian cattle and Yorkshire swine have been special features. Mr. Hamilton has taken the initial step in many cases in scientific agriculture in his locality. He has contributed largely to the agricultural press and is experienced in Institute work.

Subjects:—

"The Dairy Herd—Breeding, Feeding and Management."
"The Corn Crop—Cultivation, Variety, Harvesting and Feeding Value."
"Alfalfa."
"Swine Problems—Selection, Feeding and Housing."
"Weeds."

Harkness, R. E., Irena.—Mr. Harkness has specialized in Fruit-Growing and Bee-Keeping; two branches which can be made most profitable in practically all sections of the Province. Mr. Harkness has had some experience in local Institute work and there is no doubt but that his services will be appreciated in the larger field.

Subjects:—

"Orchard-planting, Pruning, Cultivating."
"Orchard-spraying, Thinning, Packing, Marketing."
"Bee-Keeping."
"The Farmer's Garden."

Holdsworth, R. L., Port Hope, Ont.—Mr. Holdsworth is a farmer of some forty years' experience, devoting his attention largely to sheep, hogs and beef cattle. He has been an active worker in the local Institutes for a number of years.

Subjects:—

"Beef Cattle."
"The Sheep Industry."
"The Rearing of the Calf—Dairy or Beef."
"The Care and Application of Manure."
"Root Culture."
"The Corn Crop."

Hume, Alex., Menie.—Mr. Hume is a noted Ayrshire breeder in the County of Northumberland. He is also a prominent prize-winner at our fall fairs. He is well prepared to discuss the dairy herd from all standpoints, and his services are much valued.

Subjects:—

"Building Up a Dairy Herd—Breeding, Selection, Feeding and Care."
"Stable Construction and Water Supply."
"Growing of Suitable Crops for Dairy Herd."
"The Bacon Hog."
"Rotation of Crops and Application of Manure."

Evening: "Advantages of Farm Life."

Hyatt, J. W., West Lake.—Mr. Hyatt has done much for the advancement of agriculture in his district, devoting much attention to the improvement of farm crops and the building up of the dairy herd. He has made a study of the growing of crops for canning purposes, and has been one of the moving spirits in the establishment of a local co-operative canning factory. Mr. Hyatt is a good public speaker and has the faculty of imparting his information in an attractive and forceful manner.

Subjects:—

"The Building up of the Dairy Herd."
"Soiling Crops for Farm Animals."
"The Market End of Farming."
"The Selection of Seed."
"Destruction of Weeds and General Cultivation."

Evening: "A Well-kept Farm and its Influence upon Home Life."
"Beneficial Effects of Living Close to Nature."

Innes, A., Clinton.—Mr. Innes is a thoroughly successful general farmer. He has done considerable judging of live stock at Fall Fairs and has handled a large number of horses for many years.

Subjects:—

"The History of the Heavy Horse."
"Breeding, Feeding and Caring for the Draft Horse."
"Pioneer Country Life in Comparison with Country Life To-day."

James, D., Thornhill.—Mr. James took possession of the farm on which he now resides some thirty-four years ago, and has succeeded in converting it from a bed of weeds and rubbish into a clean, systematic and well-equipped farm. He is a believer in general farming, as will be seen from his list of subjects. Some thirty years ago Mr.

James and his neighbors formed an association and held weekly meetings throughout the winter. At that time he began the collection of a library, and to-day has one of the best-equipped agricultural libraries to be found among practical farmers.

Subjects:—

"The Weed problem."
"The Dairy Herd: Feed and Care."
"Growing, Curing and Feeding Alfalfa."
"Poultry on the Farm."
"Feeding of Farm Animals."
"Seed Improvement."
"Ensilage."
"Boy Life and Bird Life as viewed from the Farm."

Johnson, D., Forest.—Mr. Johnson, President of the Ontario Fruit Growers' Association, has studied fruit-growing methods and marketing in California, Oregon, Washington and British Columbia, and visited most of the British and American markets. He is a capable and successful grower and shipper, and intensely interested in advancing the cause of the fruit industry in his own Province.

Subjects:—

"Care and Cultivation of Fruit."
"Insects and Fungi Affecting Fruit and Trees."
"The Spraying of Fruit."
"Marketing and Shipping of Fruit."
"Co-operation."
"Peach Growing in Western Ontario."

Evening: "Fruit Growing in California and Oregon."

Jones, Harold, Maitland.—Mr. Jones is one of the pioneers who redeemed the reputation of the St. Lawrence Valley as a fruit district. He has made the "McIntosh Red" apple world-famous, and he has demonstrated the advantages of clean cultivation, proper fertilization and persistent spraying. The heavy yield which his crops have made when other farmers have met failure amply bears out the value of his principles.

Subjects:—

"Cultivation and Care of Orchards."
"Injurious and Beneficial Insects."
"Fungi-Spraying Mixtures and their Application."
"Successful Potato Growing and Treatment for Blight."

Evening: "Our Bird Friends."

Kerr, W. J. Woodroffe.—Mr. Kerr has for several years operated one of the largest small fruit plantations in the eastern half of the province, strawberries and raspberries being his specialty. As Secretary of the Ottawa Branch of the Ontario Vegetable Growers' Association for the past five years, he has had considerable experience in vegetable work. This branch has within this time become one of the foremost in the province, many new and beneficial schemes having been inaugurated. Mr. Kerr is also Director and Second Vice-President of the Provincial Vegetable Growers' Association, and has acted as judge in their Field Crop Competitions. He has been a Director of the Ottawa Horticultural Society for several years, and has had wide experience in amateur and commercial floriculture.

Subjects:—

"How to make the Farm Orchard Pay."
"Commercial Fruit-Growing."
"Truck Gardening for City Market."
"What Fruits and Vegetables the Farmer should grow for his Family and how he may best grow them."

Evening: "Beautifying the Home Grounds."
"Interesting the Young Folk in the Farm and Home."

Kydd W. F., Simcoe.—Mr. Kydd has made a special study of horse-raising, as adapted to Ontario conditions. He is prepared to discuss the breeding and conformation of draft, carriage and saddle types. For three seasons now, Mr. Kidd has had charge of a number of demonstrations orchards, in which the Fruit Branch has been most successful in showing farmers what can be done towards reclaiming orchards which have been neglected. The results have been most marked, and many farmers are cultivating, pruning and spraying with the best of results. Mr. Kydd will be prepared to give demonstrations in box or barrel packing, if the Institute officers so desire. Any of Mr. Kydd's fruit topics or the "Education of the Harness and Saddle Horse" are quite suitable for evening meetings. Mr. Kydd will be available for only a few meetings this season.

Subjects:—

"Horse Raising in Ontario."
"Neglected Orchards."
"Pruning and Spraying."
"Packing and Marketing."
"Small Fruits."

Lewis, F. M., Burford.—Mr. Lewis has had much to do, as secretary, with the success of the South Brant Farmers' Institute. He has followed farming all his life, and is the owner of a good orchard and pays special attention to the production of potatoes. His success as a feeder of steers and pigs for market has been marked.

Subjects:—

"Clovers, the Key to Successful Farming."
"Green and Barnyard Manure, Their Care and Application."
"Corn and the Silo."
"Seed Selection."
"Potato Growing."
"Apple Growing."

Evening: "Waste Places."

McCallum, J. M., B.S.A., Shakepeare.—Mr. McCallum is a graduate of the O.A.C., and has since his graduation been putting into practice, with good effect, the lessons learned during his course. Mr. McCallum has been a most acceptable judge at the Fall Fairs, and has had experience in Institute work. He is a forceful and convincing speaker.

Subjects:—

"Seed Selection as a Basis of Crop Improvement."
"The Corn Crop."
"Alfalfa a Catch Crop."
"The Draft Horse."

Evening: "Is Farm Life Attractive?"
"The Mystery of Growth in Plant Life."

McCurdy, R. H., Vienna.—Mr. McCurdy is one of the up-to-date farmers of Elgin County. He has always taken a great pride in the beautifying of his own home surroundings and a deep interest in everything pertaining to the improvement of his crops and herds. Mr. McCurdy has practised general farming with fruit growing as a speciality, and is prepared to give some very interesting talks as indicated below.

Subjects:—

"Farm Drainage."
"The Short Rotation and Hoed Crops in relation to the Weed Evil."
"The Apple Orchard."
"Alfalfa."
"Strawberry Culture."

Evening: "Gleanings from the Field."

McDermott, James, Elmvale.—Mr. McDermott is a successful practical farmer, who has always been deeply interested in anything which meant the development of agriculture in his locality. He is President of the Local Farmers' Club, an indication of the respect in which he is held by his fellow-farmers. An experienced public speaker, he is able to state in a clear, forceful manner the lessons which he has learned from experience and observation.

Subjects:—

"Poultry Keeping on the Farm."
"Drainage."
"Selection of Seed."

Evening: "Our Opportunities."

McDonald, W. R., Ripley.—Mr. McDonald is a very successful farmer of Centre Bruce. He has always taken an active interest in Institute work, and has done splendid service as President of the local organization.

Subjects:—

"The Breeding, Feeding, and Care of Sheep."
"Feeding and Handling Beef Cattle."
"Seed Selection."

McEwen, C. F., Byron, Ont.—Mr. McEwan is an Associate of the Ontario Agricultural College and has been associated with his father in successful farming operations in which Southdown sheep and beef cattle have been a feature.

Subjects:—

"Breeding of Beef Cattle."
"Sheep-raising."
"Stable Feeding and Finishing Steers."
"The Building and Equipment of Stables."

McEwen, Col. Robt., Byron.—Col. McEwen is a breeder of national reputation and has judged with every satisfaction at a great many Fairs, not only in Ontario but in other Provinces. He will be employed for most of the time that he is available at Short Course work, and is prepared to give instruction in judging of Dairy Cattle and Sheep. He will be prepared to give addresses bearing upon these two classes of stock.

Mallory, Fred. R., B.S.A., Frankford.—Since graduating from the O.A.C., Guelph, Mr. Mallory has devoted his attention to practical work on the farm. He keeps a number of pure-bred Holstein cattle, and produces milk in large quantities. The success attending the application of scientific principles to the practical work of the farm has been demonstrated by Mr. Mallory, and he has much of interest and value for the tiller of the soil. Mr. Mallory can attend only a limited number of meetings this year.

Subjects:—

"Dairy Farming."
"Silos and Silage."
"Clover."
"The Question of Plowing Deep or Shallow."
"The Farmer's Garden."
"Farm Surroundings."

Millen, F. E., O.A.C., Guelph.—Mr. Millen is a Senior student of the Agricultural College who has had an extended experience in handling apiaries. He has been on apiary inspection work in the Ottawa Valley for the past two seasons and is well qualified to give advice regarding matters pertaining to bees and honey.

Moorehouse, R. L., Cairo.—Mr. Moorehouse is a successful young farmer, who has had the advantages of special training. He has already done acceptable work in the Local Institute and has assisted at special Judging Classes. He will be found a thorough master of the topics for which he is announced. Mr. Moorehouse will be prepared to give instruction in the judging of beef cattle and sheep.

Subjects:—

"The Breeding and Feeding of Beef Cattle."
"Alfalfa, the Scientific and Practical."
"The Control of Soil Moisture."
"The Drainage.'
"The Business End of Farming."
"Sweetness at Home."

Murphy, Robt., Alliston.—Mr. Murphy is one of the most successful and best known among the farmers and stockmen of Simcoe County. He has also taken a leading part in the public affairs of his county working up to the Wardenship and has had considerable experience in Institute work.

Subjects:—

"Soil Problems."
"Soil Cultivation and Drainage."
"Losses and Gain as the Result of Seed Selection."
"Selection and Feeding of Beef Cattle."

Evening: "Shall our Boys and Girls remain on the Farm?"
"The Choice of Occupation."

Ness, Robert. Howick, Que.—Mr. Ness is the well-known Clydesdale importer and breeder. He also laid the foundation of one of the most famous Ayrshire herds on the continent. He has been prominent in agricultural work and Institute members should benefit greatly by Mr. Ness's experience.

Subjects:—

"The Breeding and Feeding of Heavy Horses."
"Dairy Cattle."
"The Improvement of Live Stock."
"The Agriculture of the British Isles."

Paget, J. N., Canboro.—Mr. Paget is well known in dairy circles through his connection with the Dairymen's Association of Western Ontario. He has been either director or president for a number of years, and is now a member of the directorate. Mr. Paget is particularly well known in his own district for the aggressive and up-to-date methods he has adopted in conducting his dairy business. He is not only a thoroughly practical man, but is capable of presenting the results of his experience in a clear and forceful manner.

Subjects:—

"Care and Production of Milk."
"Profit and Loss in Dairying."
"Handling the Finished Product Until It Reaches the Consumer."
"The Growth of Alfalfa and its Importance to Dairymen."

Evening: "The Relation which should exist between Producer, Proprietor and Maker."

Pearce, S. M., Iona.—Mr. Pearce is an associate of the Ontario Agricultural College and been breeding high class grades and Shorthorns since 1904. He was a member of the International Stock Judging Team while attending College.

Subjects:—

"Corn Growing."
"Silos and Silage."
"Alfalfa Growing."
"Drainage."

Peart, Grant S., Burlington, Ont.—Mr. Peart, of Burlington, is a graduate of the Ontario Agriculture College, and has had the advantage of extensive practical experience upon one of our best Ontario farms, both before and subsequent to his course at the College.

Subjects:—

"Insects and Fungi Attacking Fruit Trees; Methods of Control."
"Fertilizers, Natural and Chemical Manures, Where and Why to Apply Them."
"Under Drainage."
"The Apple Orchard."

Philp, Jno. R., Maple Lane.—Mr. Philp is a practical farmer, and has for many years carried on farming operations on his 150-acre farm in South Grey. He is enthusiastic about the value of short rotation for combating weeds, and the appearance of his farm proves that he has made good use of the short rotation, as he has one of the cleanest farms in South Grey. Mr. Philp is also a well-known breeder of Shorthorn cattle and Leicester sheep. His past experience in public speaking enables him to present his subjects in a clear and forceful manner.

Subjects:—

"Alfalfa."
"Crop Rotation."
"Care and Application of Manure."

Evening: "Planting Trees and Beautifying the Farm."
"Farm Water Supply."

Porter, C. E., Appleby.—Mr. Porter is a very successful young farmer and a prominent breeder of pure bred stock. He has been a leading prize winner at the Canadian National in 1911 and 1912.

Subjects:—

"Types of Heavy Horses for Breeding Purposes."
"Care and Feeding of Brood Mares and Young Horses."
"Apple Growing, Reclaiming of Orchards, Spraying, Cultivation, etc."
"Alfalfa."

Evening: "Beautifying of Home and School Grounds."
"What is Worth While."

Reed, Dr. Henry G., Georgetown.—Practical experience on the farm and an opportunity of studying agricultural conditions throughout the Dominion enables Dr. Reed to give a practical application of his scientific knowledge as a veterinary surgeon. He is specially at home in judging heavy and light horses, and is also a good judge of beef cattle. Dr. Reed is prepared to answer questions on "Breeding, Feeding and Care of Domestic Animals," and to give addresses upon the subjects indicated below. He has had wide experience in judging at fall fairs and Institute work, and his services have been uniformly acceptable. He will be engaged almost continuously in short course work this season.

Subjects:—

"The Influence of Natural Laws on the Breeding of Live Stock."
"Horse Breeding."
"Care and Feeding of Horses."
"The Horse's Foot in Health and Disease."
"Care of the Brood Mare and Her Foal."
"Parturient Diseases of Cattle."

Evening: "The Training of Young Horses."

Rittenhouse, S. H., Jordan Harbor.—Mr. Rittenhouse is one of the successful fruit growers who has specialized in strawberries. He has made a study of drainage with a view to orchard improvement. He is prepared to give much valuable advice gleaned from his own experience.

Subjects:—

"Tomato Growing."
"Caring for the Apple Orchard."
"Corn Growing for the Silo."

Evening: "Making Farm Life Attractive."

Robertson, Geo. A., B.S.A., St. Catharines.—Mr. Robertson after graduating from the O.A.C., spent some years with the most prominent fruit growers in the Grimsby section. He then took up land for himself near St. Catharines and has been very successful in the growing of all kinds of fruits, especially sweet cherries. His efforts along poultry lines have met with equal success, and have led him to believe the combinations of fruit and poultry yields surer and more abundant returns than the fruit business alone.

Subjects:—

"Asparagus, Plums."
"Raspberries, Peaches, Cherries, Pears, Tomato Growing, etc."
"Spraying, Pruning, Cover Crops, Fertilizers."
"Underdraining."
"Poultry Incubation, Breeding, Trap Nests, Housing, Feeding, Preparation for Showing, Co-operation in Marketing, etc." Demonstrations in comparison of conformation, also in trap nets, leg hands and toe punches.

Rocheleau, Denis, Tecumseh.—Mr. Rocheleau is one of the successful farmers of Essex County, and has been particularly successful in the production of market garden crops. His experience as a dairyman and in general farm work renders his instruction along these lines of special value. Mr. Rocheleau is able to give instruction in both French and English.

Subjects:—

"Home Dairy Work."
"The Farmer's Fruit and Vegetable Garden."
"The Growing of Potatoes."
"Cultivation of the Land."

Schuyler, C., Brantford.—A thorough practical knowledge of general farming combined with an Associate course at the Ontario Agricultural College, has made Mr. Schuyler a valuable acquisition to the Institute staff. He has handled successfully, during the past year, a large number of commercial apple orchards.

Subjects:—

"Alfalfa."
"Dairy Cattle."
"The Cultivation of Corn and the Silo."
"Horse Breeding."
"Fruit growing and Management of Orchards."

Shaw, J. C., Norwich, Ont..—Mr. Shaw is a successsful farmer in the County of Oxford, having removed from the County of Wentworth some few years ago. Since coming to South Oxford he has demonstrated that money can be made from a run-down dirty farm, at the same time that it is being put in first-class condition. Mr. Shaw's advice on this line of work, as well as upon general farm topics should prove of interest and benefit to the districts which he may visit. Mr. Shaw has won medals for excellence in quality of farm products as well as for the appearance on his farm.

Subjects:—

"Improvement of Grain Crops through Seed Selection."
"A Profitable Experience with Tile Draining."
"Maintaining and Increasing Fertility on the Farm."

Shearer, W. C., Bright.—Dairying is the particular department of farming in which Mr. Shearer has been eminently successful. He has kept records of the feed consumed by the hogs produced, and will be able to give information of much value regarding the feeding of sweet pasteurized whey in conjunction with other foodstuffs. He is thoroughly practical, a good speaker, an Institute man of experience for some years past, and a most acceptable delegate. As will be seen from his subjects, Mr. Shearer is also prepared to discuss the bacon, seed and corn questions.

Subjects:—

"Rotation of Crops and Selection of Seed."
"Breeding and Feeding the Bacon Hog."
"Production and Care of Milk and the Pasteurizing of Whey."
"Tile Underdrainage."

Silcox, F. H., Iona.—Mr. Silcox is a farmer's son and has managed a 100-acre farm of his own for the last 12 years. He is a graduate of the Ontario Agricultural College, and an ex-President of the West Elgin Farmers' Institute. He has had a life-long experience in growing Alfalfa, improving worn-out, weedy land, and in breeding and marketing Light Horses, Leicester Sheep and Jersey Cattle.

Subjects:—

"Alfalfa Growing."
"Intensive Farming on 100 Acres."
"A Few Phases of the Light Horse Industry."
"Farming as a Business Proposition."
Demonstrations in Dairy Cattle, and Light Horses.

Smith, Robt. B., Columbus, Ont.—Mr. Smith, Jr., has had extended experience in the selection, care and handling of a large number of imported horses and has thereby gained much knowledge which should prove of great value to the farmers of Ontario. Mr. Smith will be prepared to give demonstrations in the judging and desirable conformation of heavy horses at live stock judging classes. He will also be prepared to give addresses upon the following topics:—

"The Feeding of Horses."

Evening: "High Ideals in Farm Life."

Stevenson, R. S., Ancaster.—Mr. Stevenson is one of the oldest Institute workers in Ontario. Being a practical dairyman and breeder of dairy cattle, he has been identified with advanced dairy work in Ontario for a long time. During the past few years he has acted as judge of live stock at many fall fairs, and has given excellent satisfaction. No matter where he goes, Mr. Stevenson is always welcome, and is recognized as a man who thoroughly understands the work he undertakes to discuss.

Subjects:—

"A Practical Talk on Dairy Cows, Breeding, Selecting, etc."
"Growing the Corn Crop and Handling it to the best advantage."
"How to Make Dairying more Profitable on the Average Farm."
"The Growing of Root Crops."
"The Cream Separator on the Farm."

Evening: "The Farm Water Supply."

Stinson, W. J. Burlington.—Mr. Stinson is a leading farmer of Halton County.

Subjects:—

"The Care and Feeding of Dairy Cattle."
"Production and Feeding of Beef Cattle."
"Rotation of Crops."
"The Bacon Hog."

Stuart, J. C., Dalmeny.—Mr. Stuart is a young man who has made a decided success of "dairying," "poultry raising" and "bee-keeping," and is a speaker of considerable experience.

Subjects:—

"The Breeding and Care of Dairy Cattle."
"Corn and the Silo."
"Alfalfa."
"Poultry-Raising a Profitable side line for the Farmer."
"Control of Soil Moisture."
"How Should we Pay for Milk at Cheese Factories."

Swale, Cecil, Wiarton, Ont.—Mr. Swale is enthusiastic about corn ensilage. He has found it a paying feed and has made many converts to its use in his locality. Mr. Swale is one of Ontario's most successful potato growers.

Subjects:—

"Corn and the Silo."
"Potato Culture."
"Rearing and Feeding of Sheep."
"Clover Production and the Destruction of Weeds."
"Poultry Production."

Swim, Albert, Mabee.—Mr. Swim is a successful former, paying special attention to Dairy and Live Stock work.

Subjects:—

"Heavy Horses."
"The Dairy Cow."
"Corn."

White, R. E., Balderson.—Mr. White is a successful general farmer and an enthusiastic member of the Local Debating Society. He has done splendid service among the farmer's clubs of his district.

Subjects:—

"Tillage and Rotation of Crops."
"Conservation of Soil Moisture."
"Corn and the Silo—Soiling Crops and Their Importance."
"The Breeding, Feeding and Selection of Beef Cattle."
"The Dual Purpose Cow from Birth to Maturity."

Evening: "How can the Farmer Spend his Winter to the Best Advantage."

Widdifield, J. W., B.S.A., Uxbridge.—Mr. Widdifield's identification ever since his graduation with the farm and the work of various farmers' associations, has equipped him with a practical knowledge of not only stock and field subjects but of farmers' problems generally.

Subjects:—

"Alfalfa."
"Corn Growing and the Silo."
"Increasing Soil Fertility."
"Preserving Soil Moisture."
"Destruction of Noxious Weeds."
"Breeding and Feeding of Sheep."

Evening: "Nature Study."

WOMEN'S INSTITUTE LECTURERS AND THEIR SUBJECTS, 1912-13

Allan, Miss Margaret A., Jarvis.—Since graduation in Household Science at Alma College, Miss Allan has taken an active part in the work of her home Institute at Jarvis.

Subjects:—

"Home Nursing."
"Laundry Work."
"Household Sanitation."
"Hygiene."

Backus, Dr. Annie, Aylmer.—Dr. Backus brings her medical training and practice, as well as her experience in country life, and places them at the disposal of the women of the Province. She is eminently practical, ready and willing to help womankind. She has been closely identified with Institute work throughout the Province, and especially in her own riding, for ten years. Dr. Backus will illustrate her lectures on "Physical Development of the Child" and "Poultry Raising" at the evening sessions by the use of stereopticon views.

Subjects:—

"Hygiene of the Home and Aids in Nursing."
"Consumption and Its Prevention."
"The Importance and Meaning of Woman's Work."
"Training in the Home."
"Education of Girls."
"Physical and Mental Harm of Fault-Finding."
"Medical Inspection of Schools."
"Poultry Raising."—Illustrated.
"The Physical Development of the Child."—Illustrated.

BRETHOUR, MRS. J. E., Burford.—Mrs. Brethour has been one of the most progressive and successful district officers, and has also given assistance to many of the Institutes surrounding Brant. She will be remembered as one who has taken part in our Annual Convention. Her advice and suggestions regarding Institute work will be found helpful. Her addresses are animated, interesting and instructive, and are specially helpful to those who are responsible as officers of the Institutes. Mrs. Brethour will be able to attend only a few meetings this season.

Subjects:—

"Simple Entertaining in the Country."
"Homely Wrinkles for Housekeepers."
"Is a Woman's Time Worth Anything?"
"The Evolution of the Country Woman."
"How to Make an Institute a Success."
"Books: Our Friends or Enemies?"

CAMPBELL, MISS SUSIE, Brampton.—Miss Campbell is an Institute worker of considerable experience who always leaves her audiences enthusiastic in pursuing definite lines of work. She is untiring in her faithful efforts to leave with her hearers noble thoughts and sentiments in keeping with her tastes and surroundings. Miss Campbell is an ex-teacher and has judged dairy products, needle work, and fine art at many of our fall fairs. Her success in extending the Women's Institutes throughout Peel County has been most marked, and she has done much to stimulate branches in many parts of the Province to better work.

Subjects:—

"The Ideal Home."
"Individual Life of a Young Woman."
"The Influence of Women and Men."
"The Judicious Housekeeper and Homemaker."
"Home and School."
"Child and Parent."
"Our National Assets."
"Eugenics."
"The Mother's Everyday Problems."
"The Educated Farmer and his Possibilities."
"Imprints of Institute Work."

DAWSON, MRS. W., Parkhill.—Mrs. Dawson is an enthusiastic supporter of the Women's Institutes. She has done much to place the Parkhill Institute in the front rank of progressive societies. She has delivered a number of addresses before the local organization and has given the work prominence through the local press. With her liberal education, wide reading and close study of present day conditions in the home, she is in a position to make the subjects announced of great interest and value.

Subjects:—

"Some Hurry-up Dishes."
"The Farmer's Wife and her Problems."
"Our Institute Women."
"What our Friends Never Know."
"The Hand that Rocks the Cradle"—(Problems for Mothers).
"Easily Made Garments for Women and Children."—Illustrated.

Farley, Mrs. W. W., Smithfield.—Mrs. Farley is the mistress of a model country home and has been instrumental in organizing a number of branches in her district, East Northumberland. She has already attended a few Institute meetings as a Departmental delegate, and the appreciation expressed by the Institutes visited insures successful meetings where she is the speaker.

Subjects:—

"Home Nursing."
"Care and Training of Children in the Home."
"Helps Over Hard Places in the Household."
"Flowers for the Farm Home."
"Canning of Fruits, Vegetables and Meats in the Home."

Evening: "The Macdonald Institute, Guelph."

Ferguson, Mrs. W. B., Strathroy.—Mrs. Ferguson, formerly Miss Agnes Smith, of Hamilton, since giving up work as a Departmental delegate some four or five years ago, has been active in local organizations, and the Department is fortunate in securing her for a regular series of meetings this season. Scientific training in Domestic Science and Dairying, practical experience on the farm, and her ability to present information in a pleasing, forceful manner insures effective work on the part of Mrs. Ferguson.

Subjects:—

"The Conveniences and Labor Saving Devices we may have in our Homes."
"Health a Duty."
"The Place our Institute may fill in our Lives."
"The Power and Value of the Ideal in our Lives."
"What a Home Science Training Means to a Girl."

Gilholm, Miss B., Bright.—Miss Gilholm has been an efficient officer of the District Women's Intitute of North Oxford, and is able to render much assistance to officers of both district and branch Institutes. Miss Gilholm has taken the regular creamery course at the Guelph Dairy School and holds a specialist's certificate in buttermaking, as well as a diploma in the theory and art of buttermaking. Miss Gilholm's knowledge and appreciation of country life enables her to impart information in a manner much appreciated by the members in general.

Subjects:—

"The Plant and its Relation to the Dairyman."
"Will the Dairy Cow Remove the Mortgage?"
"Opportunity."
"Thoughts of Old Friends and New."
"Canadian Women."

Gray, Miss G., 650 Bathurst St., Toronto.—Miss Gray needs no introduction to the majority of Institute members in Ontario, as she has visited nearly all sections in which the work has been organized. She has devoted several seasons to Institute work in New York State. She is a thorough master of the subjects announced, and presents her information in a clear, forceful and attractive manner.

Subjects:—

"Diet in Relation to Health."
"Meats—Composition, Cuts and Cooking."
"Home Decoration."—Illustrated.
"Things Worth While."
"Woman's Work in the World."
"The Individual's Value to Society."
"Forces that Make for Success."

Guest, Dr. Edna M., 700 Bathurst St., Toronto.—Dr. Guest, whose childhood days were lived in a rural home, has always had a keen appreciation of conditions in rural districts. Always of a literary turn of mind, she has occupied positions which have given her experience in public speaking. She has had the honor of being president of the Women's Medical Society of Toronto University, which position is an evidence in itself of her capabilities. Dr. Guest is now practising in the City of Toronto. She is in thorough sympathy with the work of the Women's Institutes, and we regret that she is able to attend only an occasional meeting this season. Her list of subjects is an indication of the practical information which may be received from her address.

Subjects:—

"Tuberculosis: Cause, Prevention and Cure."
"Laws of Health."
"The Nervous System: Its Construction and Modern Abuse."
"Causation and Prevention of Disease."
"Emergencies."

Hamilton, Dr. L. S. M., 68 MacPherson Ave., Toronto.—Dr. Hamilton's medical training and experience, together with a deep interest which she has taken in social welfare work, enables her to render most acceptable and profitable service to the Institutes.

Subjects:—

"The Health of Woman."
"A Child's Rights."
"Teaching Life Truths."
"The Life of a Working Girl in the City."
"Physical Housekeeping."

Hotson, Miss A. M., Parkhill.—Eight years' experience in kindergarten work has impressed upon her the needs of children and the necessity for common-sense in supplying these needs in their life both at school and at home. Miss Hotson took her post-graduate work in Chicago, where she lived in Gertrude House, and had the opportunity of seeing the effect of residence life on girls and the value of the Home Makers' and Arts courses for young women.

It was largely through Miss Hotson's influence that rooms have been provided for the use of the Women's Institute at Parkhill. A mothers' and babies' room has been provided, small tables, chairs and toys being furnished for the children. Miss Hotson will have many suggestions of value regarding programmes, co-operation of mothers and teachers, etc. Miss Hotson is not available this season for any considerable number of meetings.

Subjects:—

"The School: Its Relation to the Community."
"Citizenship."
"The Education of Women."
"The Love of the Beautiful."
"Home Problems: Imagination, Discipline, Home Occupation for Children."
"The Family as a Shaping Influence."

Hughes, Miss D. I., 1111 College St., Toronto.—Miss Hughes is a graduate in Domestic Science. Her experience in hospital work and familiarity with both country and city conditions and requirements gives her a fund of information which will be much appreciated by the Institute members.

Subjects:—

"The Profession of Home Making."
"The Interior of our Homes."
"Household Management."
"Domestic Art, and What It Means to Women."
"Teaching Children to Sew."
"Our Clothes: Their Selection and Making."
"Food for the Sick."

Hunter, Mrs. W. J., Pleasant.—Mrs. Hunter is one of our progressive Women's Institute members and has been of great assistance as a district officer in furthering the work in Peel County. She is mistress of a fine country home and has been active in local Institute work, as well as assisting at some of our Annual Conventions and attending meetings in various sections of the Province.

Subjects:—

"Systematic Housekeeping."
"The Benefits of Institute Work."
"Training Children in the Home."
"Don't Worry."
"Little Things that Make Home Happy—or Otherwise."
"Homemakers and Patriots."

MacMurchy, Dr. Helen, 133 Bloor St. E., Toronto.—Dr. MacMurchy's professional duties prevent her from devoting much time to Women's Institutes. However, the limited time which she gives is much appreciated by the Department and by the Institute members. Her addresses are pointed, full of enthusiasm, and always adapted to the needs of the locality visited.

Subjects:—

"Typhoid Fever."
"Accidents."
"Nerves."
"Tuberculosis."
"Infant Mortality."
"The Day's Work."

McMurchie, Miss H., Harriston.—Miss McMurchie is a Macdonald Institute graduate, and graduated last year in philosophy from Toronto University. She won the Governor-General's gold medal for proficiency in her final year. She has been in Institute worke for several years, and is always an acceptable lecturer.

Subjects:—

"Our Social Responsibilities."
"The Education of Girls."
"The Other Woman."
"System in Housekeeping."
"Labor-Saving Devices."

McTavish, Mrs. D., Port Elgin.—We are fortunate in securing the services of Mrs. McTavish, who is so well and favorably known among the Institutes, to attend a few meetings this year. Her wide experience in Institute work, both as a local officer and a Departmental lecturer, enables her to render valuable service to the Institute officers who are looking for suggestions as to how to make the work most successful.

Subjects:—

"Kindness and Economy in the Home."
"The Education of our Daughters."
"Care and Training of Children."
"Health and Hygiene of the Home."
"Improvement of Time—Care of Odd Minutes."

McTurk, Mrs. E. B., Lucan.—Mrs. McTurk has had special training as an optician and is well and favorably known as an enthusiastic, efficient worker in the local organizations. She has had considerable experience as a Departmental lecturer. Her subjects speak for themselves.

Subjects:—

"The Care of the Eyesight."
"Home Care of Sick and Visiting Sick."
"Child Training in the Home."
"What that Other Institute is Doing."
"Sewing and Buttonless Garments."—Demonstrated.
"For Home and Country."

Millar, Miss B., 22 Liverpool St., Guelph.—Miss Millar's special training, wide experience, enthusiasm and tact stand her in good stead as an Institute worker. Through her experience in travelling dairy work in Nova Scotia and Institute work in New York State and Ontario, she has developed into one of our most acceptable and effective workers. Miss Millar is prepared to give the Institutes the benefit of her special training in home nursing and emergencies.

Subjects:—

"The Day's Work."
"Modern Methods in the Laundry."
"Some Essentials in Nursing."
"Milk and Its Uses as Food."
"Dairy Sanitation."
"The Boarder Cow."
"Buttermaking and Other Dairy Problems."
"What Money Cannot Buy."
"You and I as Nation Builders."

Murdoch, Miss Mary E., Palmerston.—Miss Murdoch, since graduation in Domestic Science from Macdonald Institute, Guelph, has had experience in hospital work. Her familiarity with country conditions and requirements will enable her to give information to the rural Institutes which will be thoroughly appreciated.

Subjects:—Bee-keeping as an Occupation for Women."
"Legumes and Their Use."—Demonstrated.
"Quick Desserts."—Demontrated.
"Home Economics."
"Diet in Its Relation to Health."
"Some Farm Problems as They Concern Women."

Norman, Mrs. M. N., 616 Bloor St. W., Toronto.—Parenthood and racial ethics constitute one of the most vital, fundamental, and, strangely enough, one of the most neglected of all important themes. Mrs. Norman brings to its exposition practical views, clear enunciation, choice English, with chaste diction of unusually happy style. Her personality as a speaker is particularly attractive. Her teaching appeals to the judgment as definite, convincing and final.

Subjects:—

"The Individual and the Community."
"The Power of Personality."
"The Three 'L's'—Laughter, Love, Life."
"How to Help the Boys and Girls."
"Child and Parent."
"Libraries and Literary Clubs."

Parsons, Mrs. Horace W., "Stewartleigh," Forest.—Mrs. Parsons is a member of the Press Committee of the National Council of Women, in which organization she has taken an active interest for some years. Women's Institute work appealed to her and she has devoted much energy and thought in preparing addresses of vital interest to all women. Her wide experience in society work places her in a position to give valuable advice to the officers of the Institutes.

Subjects:—

Afternoon.
"The Child and the Story."
"Heredity."
"Mental and Physical Development."
"Marriage."
"The Magnetism of Personality."
"Canadian Laws Concerning Women and Children."
"Books of To-day and Their Influence."
"Rural Economics."

Evening.

"Our Inheritance."
"Canadian Writers."
"Women Workers of Our Time"
"Books with a Purpose."

Powell, Miss M. V., Box 453, Whitby.—Miss Powell is deeply interested in everything which pertains to the advancement and education of the present and future nation-builders, and this work appeals very strongly to her. She has already had several years' experience in Institute work, and the logical, pleasing and forceful manner in which Miss Powell presents her very important addresses appeals effectively to her audiences.

Subjects:—

"Canada's Possibilities."
"Character Building."
"Our Country's Assets."
"Refinement in the Home."
"A Present Day Need."
"How We Can Help Our Girls, and How They Can Help Us."
"Demonstrated Talk on Plain and Fancy Sewing."

Reynolds, Miss Lulu, Scarboro Junction.—Miss Reynolds has had extended experience as Secretary of the East York Women's Institute, and as a Departmental delegate. Institute officers will find her advice and suggestions bearing upon Institute methods and work of special interest and value.

Subjects:—

"Household Management."
"What We Eat."
"The Vegetable Garden."
"Hints on Institute Work."
"Character Building."
"The Twentieth Century Woman's Accomplishments."

Robson, Miss Ethel, Ilderton.—Miss Robson is a firm believer in the advantages of country as compared to city life, especially when one takes an active interest in bee-keeping or some of the lighter branches of farming. Miss Robson has addressed public gatherings with great acceptance, and her services will be much appreciated by the Institute members.

Subjects:—

"Bee-Keeping on the Farm."
"Economic Problems of the Country Girl."
"The Value of the Ideal."

Smillie, Dr. Jennie, 1075 Dovercourt Road, Toronto.—Dr. Smillie is a graduate in medicine at the University of Toronto, 1909. She has also taken a post graduate course in Philadelphia, and is now practising medicine in Toronto. Her medical training, together with her experience as a public school teacher in country places, and four season's Institute work, fits her to render service which should be much prized by the Institutes.

Subjects:—

"Germs and Their Relation to Disease."
"Prevention and Treatment of Tuberculosis."
"Hints for the Sick Room."
"Bandaging and Changing Bedclothing."—Demonstrated.
"Hygiene and Health in the Home."
"First Aid to the Sick and Injured."
"Infectious Diseases of Childhood."
"The Joy of Living."

Stephen, Mrs. Laura Rose, Huntingdon, P.Q.—Mrs. Stephen needs no introduction to the Women's Institutes of Ontario. Her ability as a public speaker and her wide knowledge of affairs place her in a position to render the best of service to the Institutes. Mrs. Stephen has travelled from the Atlantic to the Pacific in connection with Institute and other instruction work along homemaking and dairy lines. Her practical and carefully thought-out addresses, delivered in a pleasing and forceful manner, have placed her in the front rank of Institute workers. Mrs. Stephen is well known as a writer on dairy topics, and has published a book on "Farm Dairying." Mrs. Stephen will be prepared to attend a few meetings in Eastern Ontario this winter.

Subjects:—

"Home Butter Making."
"A Woman's Part on a Dairy Farm."
"Composition, Care, and Food Value of Milk."
"Ice Creams, Mousse, Sherbets."—(Demonstrated, if desired.)
"Our Way of Making House Work Easier."
"The Influence of Environment."

WATTS, MRS. F. W., 51 Chicora Ave., Toronto.—Mrs. Watts has had marked success both as an Institute officer and lecturer. She is a forceful, pleasing speaker, whose addresses have been much appreciated. Being a graduate of the American College of Mechano Therapy, she will be able to give many valuable and helpful health hints.

Subjects:—

Afternoon.
"Would You Be Beautiful?"—Demonstrated.
"Home Treatment in Mechano Therapy."—Demonstrated.
"A Talk with Mothers and Girls."
"What Are You Doing to Help Your Institute?"
"Why Is It?"
"Your Influence in the Home."

WOELARD, MRS. M. L., 420 Bloor St. W., Toronto.—Mrs. Woelard is intensely interested in all matters which pertain to the home, and her addresses have been much appreciated. We can assure Institute officers and members that Mrs. Woelard will have messages of interest and benefit for her audiences.

Subjects:

"Poultry Raising as a Business for Women."
"Canning and Preserving and Pickling."
"Health Culture."
"Plain Sewing and Art Needlework."—Demonstrated.
"Woollen Garments for Women and Children."—Illustrated. (The members may bring Crotchet Hooks and begin the Practical Work.)

REPORT

OF THE

WOMEN'S INSTITUTES

OF THE

Province of Ontario

1912

PART I.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1912

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West,
TORONTO

To His Honour Col. Sir JOHN MORISON GIBSON, K.C. M.G., etc., etc., etc.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of your Honour the Report of the Women's Institutes of Ontario for 1912.

Respectfully submitted,

JAMES S. DUFF,
Minister of Agriculture.

TORONTO, 1912.

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WOMEN'S INSTITUTES OF ONTARIO, 1912.

To the Honourable Minister of Agriculture:

SIR,—I have the honor to submit herewith the 12th annual report of the Women's Institutes of Ontario, Part I, consisting of the proceedings of the Annual Convention held in November, 1911, selected papers, statistical statement for the year ending with May, 1912, and list of officers for the year 1912-13.

The past year has been one of progress, both in numbers and effectiveness of work. Our 700 branches with a membership of 20,861 for the year 1911-12 are becoming a greater factor from year to year for the betterment of home and community conditions in the rural districts of Ontario, and their worth is appealing to the best women of some of our cities and towns.

During the year we have furnished speakers for 1,100 meetings, and the Institutes themselves have held 5,900 monthly meetings. In addition to sending out speakers to give addresses at meetings held one day at each place, we have during the past year introduced a new feature which promises to be most effective in carrying scientific training in Food Values and Cooking, Domestic Art, and Home Nursing to the rural districts of the province. At the time of going to press we have four lecturers who are giving systematic courses to groups of Institutes, the lecturers spending one day a week at each point. Each course covers from ten to fifteen weeks.

The report of the Annual Convention as printed herein contains details as to the activities of the Institutes. There is a growing tendency among the Institutes to undertake some special line of work, in addition to the study and discussion of matters bearing directly upon the routine work of the home, although the latter has not been neglected in any respect. The sanitation of the rural school, encouragement in the beautifying of home surroundings, the establishment of libraries, the consideration of social problems in which we are all interested, child welfare, etc., are receiving due consideration.

Experienced workers in Ontario are receiving calls from other provinces and some of the States of the Union to undertake similar work, and it is most gratifying to note that during the past two or three years a promising start has been made in establishing Institutes in other provinces. The day is not far distant when the work so well begun in Ontario will have extended over the whole Dominion, and we are convinced that there is no one organization which has a greater influence in the uplift of the individual, the community and the nation.

We wish to express appreciation on the part of the Department to the large band of officers and members who have made Women's Institute work possible in Ontario. On the other hand the Institutes are indebted to the Provincial Government for the liberal grants to support the work. There is a close bond between the Women's Institutes and Macdonald Institute, Guelph. The branches generally are indebted to the Macdonald Institute for supplying material to be used in the preparation of papers and addresses.

The Institutes, because of what they are doing and what they stand for, are worthy of your most careful consideration.

Respectfully submitted,

GEO. A. PUTNAM,
Superintendent.

REPORTS OF ONTARIO WOMEN'S INSTITUTES, 1911-12.

Institute District.	Membership.	No. of Meetings held.	Total attendance.	No. of papers read or addresses delivered.	Receipts.					Expenditure.								
					Cash on hand per last Report.	Members' fees.	Grants.	Miscellaneous.	Total receipts.	Expense for meetings.	Officers' salaries and expenses.	Postage and stationery.	Printing and advertising.	Lecturers' expenses and wages.	Books and periodicals.	Miscellaneous.	Total expenditure.	Balance.
					$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Algoma Centre	109	39	1,006	51	171 71	31 50	64 00	115 13	382 34	5 15	52 00	6 81	3 30	......	75 48	58 52	201 26	181 08
Algoma, North Shore	104	38	961	70	53 01	21 75	28 00	83 77	186 53	17 00	22 50	4 80	7 12	......	3 50	68 90	123 82	62 71
Amherst Island	54	12	203	21	17 71	13 00	20 00	2 20	52 91	......	12 50	2 17	......	60	4 00	13 49	32 76	20 15
Brant, N	311	98	3,075	186	136 84	78 75	96 00	84 59	396 18	20 00	33 60	12 44	22 96	26 85	27 65	94 00	237 50	158 68
Brant, S	301	83	1,980	130	83 22	69 25	96 00	75 98	324 45	14 15	52 00	12 73	24 75	54 50	5 50	69 31	232 94	91 51
Brockville	40	13	268	15	......	10 25	10 00	56 05	76 30	2 00	1 18	5 25	......	......	......	65	9 08	67 22
Bruce, C	168	60	1,596	162	60 92	41 50	67 50	69 75	239 67	32 00	20 25	7 85	38 35	21 50	4 00	66 90	190 85	48 82
Bruce, N	141	67	1,212	90	85 81	29 75	77 00	344 61	537 17	15 90	30 40	12 23	15 68	31 00	11 45	315 73	432 39	104 78
Bruce, S	130	37	1,306	61	135 96	33 50	59 00	180 08	408 54	21 70	22 15	5 89	7 25	21 35	......	204 43	282 77	125 77
Bruce, W	94	50	982	63	48 67	28 75	69 00	15 33	161 75	1 85	25 00	8 50	14 55	21 65	8 55	21 65	101 75	60 00
Carleton	315	87	2,467	88	89 09	77 25	52 00	27 91	246 25	5 60	24 00	10 89	13 75	11 50	1 25	76 96	143 95	102 30
Dufferin	215	115	2,776	168	213 31	71 25	100 00	255 39	639 95	35 85	54 70	16 39	33 95	20 75	15 90	204 44	381 98	257 97
Dundas	264	51	1,777	60	75 85	71 25	44 00	204 66	395 76	20 30	20 80	9 64	16 50	13 82	5 80	177 87	264 73	131 03
Durham, E	479	101	2,073	97	154 25	107 00	105 00	282 68	648 93	11 60	25 00	13 55	17 26	35 95	......	330 51	433 87	215 06
Durham, W	245	65	1,832	122	110 06	61 00	81 00	196 30	448 36	17 37	23 00	8 57	16 75	3 00	86 80	127 35	282 84	165 52
Elgin, E	204	73	2,247	103	285 99	50 75	81 00	120 91	538 65	15 15	39 13	8 36	36 08	25 10	......	251 53	375 35	163 30
Elgin, W	138	35	1,063	46	49 84	32 75	31 00	53 82	167 41	19 65	20 00	4 17	7 85	9 75	......	38 80	100 22	67 19
Essex, N	215	69	1,703	83	176 01	49 00	71 00	66 16	362 17	8 25	34 50	6 88	13 35	13 50	27	63 04	139 79	222 38
Essex, S	563	71	2,653	107	161 57	148 50	81 00	521 79	912 86	45 30	47 65	19 75	33 40	16 11	70 00	288 95	521 16	391 70
Frontenac	46	23	365	13	37 35	12 75	40 00	119 21	209 31	1 00	......	2 32	6 36	4 50	......	125 71	139 89	69 42
Frontenac, C	......	4	185	1	......	4 50	......	......	4 50	......	......	16	......	......	......	......	16	4 34
Glengarry	149	24	1,375	41	18 66	35 75	22 00	25 25	101 66	9 25	......	3 26	4 82	......	......	9 59	26 92	74 74
Grenville, S	46	30	654	38	26 40	13 75	22 00	21	62 36	2 50	......	1 77	13 00	11 00	......	8 09	36 36	26 00
Grey, C	434	200	3,973	280	222 72	115 75	117 00	300 17	755 64	24 25	67 90	21 20	32 80	27 60	......	290 97	464 72	290 92
Grey, N	331	101	2,787	193	84 99	61 75	72 00	35 00	253 74	18 95	30 00	12 91	22 80	22 65	17 65	50 36	175 32	78 42
Grey, S	131	74	1,723	83	138 86	42 00	75 00	236 22	492 08	11 50	28 50	4 80	10 25	20 50	5 00	217 71	298 26	193 82
Haldimand	533	197	4,983	381	114 76	126 50	123 00	190 06	554 32	23 85	82 30	16 62	31 10	30 95	29 58	144 88	359 28	195 04
Haliburton	82	34	500	45	96 95	18 50	19 00	90 15	224 60	......	5 00	3 40	2 75	3 75	6 50	128 82	150 22	74 38
Halton	539	109	4,389	168	152 35	128 75	95 00	335 79	711 89	39 45	85 75	21 10	23 75	11 50	17 65	141 11	340 31	371 58

Hastings, E	269	74	1,731	93	93 58	69 50	76 00	626 57	865 65	39 75	39 00	8 48	29 75	7 80	3 05	397 00	524 83	340 82
Hastings, N	306	102	2,083	163	112 11	74 00	74 00	291 77	551 88	15 50	33 85	9 82	18 25	23 10	29 80	221 12	351 44	200 44
Hastings, W	146	34	808	54	36 22	23 00	38 00	34 47	131 69	3 00	15 00	4 11	6 00	2 50	......	58 77	89 38	42 31
Huron, E	245	91	1,842	106	43 65	76 00	71 00	196 87	387 52	63 63	39 40	13 78	21 35	6 20	12 50	146 36	303 22	84 30
Huron, S.	17	13	107	8	8 52	4 50	13 00	71 16	97 18	3 54	2 00	1 00	4 65	......	4 60	28 63	44 42	52 76
Huron, W	183	104	2,363	132	116 49	69 50	84 00	246 48	516 47	15 20	40 03	9 58	13 75	18 29	11 00	283 97	391 82	124 65
Kenora	75	42	720	63	42 52	20 75	34 00	6 36	103 63	9 60	15 45	7 59	5 75	3 50	3 67	17 23	62 79	40 84
Kent, E	229	80	1,672	112	92 39	55 00	68 00	135 03	350 42	16 48	46 65	7 62	11 15	11 05	3 00	48 62	144 57	205 85
Kent, W.	124	78	1,221	94	78 97	49 50	68 00	100 08	296 55	7 40	20 20	3 85	15 00	11 00	24 55	111 81	193 81	102 74
Lambton, E	357	127	3,326	193	154 94	99 00	101 00	455 84	810 78	28 60	26 00	15 66	34 61	10 25	7 00	336 92	459 04	351 74
Lambton, W	301	116	2,419	156	106 12	73 75	101 00	215 82	496 69	7 90	33 00	11 28	61 32	30 25	6 00	123 70	273 45	223 24
Lanark, N.	130	24	591	12	58 23	20 75	24 00	6 12	109 10	8 50	10 00	3 93	7 65	3 75	......	55 75	89 58	19 52
Lanark, S	149	28	1,038	33	24 30	40 50	28 00	5 06	97 86	6 30	1 83	12 50	6 65	......	8 75	30 82	66 85	31 01
Leeds, South	232	51	2,053	95	97 91	81 50	65 00	605 43	849 84	9 30	14 20	8 87	9 52	1 85	12 65	344 38	400 77	449 07
Leeds, North and Grenville.	41	13	317	14	8 26	9 25	20 00	19 42	56 93	14 00	......	1 15	2 40	......	1 35	2 50	21 40	35 53
Lennox	102	24	373	17	45 73	25 25	47 00	9 12	127 10	46	18 00	1 95	5 20	......	43 91	14 33	83 85	43 25
Lincoln	237	49	1,452	73	103 14	61 25	50 00	293 08	507 47	18 10	42 00	5 91	17 65	11 80	1 50	237 48	334 44	173 03
Manitoulin, E.	144	85	1,960	141	129 45	39 75	52 00	136 49	357 69	6 00	30 85	9 31	4 00	11 14	12 82	136 06	210 18	147 51
Manitoulin, W.	129	73	1,850	165	139 38	30 00	46 00	174 18	389 56	3 85	18 60	5 90	......	......	43 40	168 09	239 84	149 72
Middlesex, E	213	83	2,152	119	117 15	49 15	77 00	73 42	316 72	23 91	21 30	8 74	8 75	30 60	1 00	94 82	189 12	127 60
Middlesex, N	350	101	2,989	167	289 47	86 25	79 50	103 58	558 80	51 88	48 60	12 98	15 70	37 69	8 45	151 18	326 48	232 32
Middlesex, W	298	50	1,786	71	48 67	52 75	43 90	68 17	213 49	13 60	20 00	6 69	10 50	3 80	17 10	75 28	146 97	66 52
Monck	244	57	1,356	58	18 29	48 00	75 00	369 86	511 15	11 50	20 75	4 51	13 96	26 70	2 70	358 58	438 70	72 45
Muskoka, C	63	24	364	30	38 76	11 50	22 00	17 73	89 99	1 00	10 00	2 26	1 00	......	4 57	27 35	46 18	43 81
Muskoka, N	119	65	1,200	98	95 95	29 50	52 00	134 13	311 58	......	13 00	7 63	4 68	2 00	2 65	94 23	124 19	187 39
Muskoka, S.	236	103	1,761	131	162 46	59 25	55 00	603 95	880 66	30 24	54 00	13 00	26 45	8 10	14 51	577 29	723 59	157 07
Nipissing, E.	28	20	430	24	16 90	9 75	6 00	12 90	45 55	......	......	1 25	......	2 00	9 03	9 55	21 83	23 72
Nipissing, W	20	15	334	13	15	6 00	3 00	303 29	312 44	......	......	1 00	2 50	......	1 40	188 48	193 38	119 06
Norfolk, N	165	64	1,568	74	135 80	42 50	53 00	61 63	292 93	5 00	20 00	5 84	6 63	18 00	1 13	88 66	145 26	147 67
Northumberland, E	328	91	4,036	188	237 54	92 25	93 00	142 68	565 47	24 66	73 75	10 09	21 00	11 85	31 70	195 49	368 54	196 93
Northumberland, W.	297	72	2,436	106	114 73	71 50	78 00	174 95	439 18	16 50	52 30	9 57	14 65	29 05	31 64	63 54	217 25	221 93
Ontario, N.	174	78	1,575	122	28 54	33 50	121 00	143 66	326 70	22 47	22 90	12 06	12 20	30 65	......	85 27	185 55	141 15
Ontario, S	372	117	3,269	157	148 25	95 25	89 00	43 86	376 36	30 09	40 60	14 43	15 78	17 75	4 85	49 50	173 00	203 36
Oxford, N	277	91	2,619	160	255 15	75 50	95 00	74 92	500 57	49 25	29 35	9 75	18 75	47 85	......	141 08	296 03	204 54
Oxford, S	255	87	1,841	116	136 61	64 25	88 85	38 77	328 48	10 48	64 09	15 58	16 06	23 50	1 30	27 72	158 73	169 75
Parry Sound East	224	126	1,873	155	224 66	62 50	36 00	315 82	638 98	20 00	5 30	13 21	7 75	16 25	30 60	181 33	274 44	364 54
Peel	503	122	4,325	207	214 79	114 00	143 75	792 79	1,265 33	47 06	68 25	27 53	48 25	13 65	1 90	717 13	923 77	341 56
Perth, N	118	42	1,141	47	36 93	34 00	34 00	53 61	158 54	7 85	19 00	9 54	7 00	7 50	......	51 96	102 85	55 69
Perth, S.	318	85	2,389	105	131 88	70 00	63 00	147 02	411 90	67 75	40 00	10 72	19 07	9 33	......	141 86	288 73	123 17
Peterboro', E	125	22	1,053	35	118 78	30 00	28 00	91 80	268 58	21 01	3 75	7 94	9 41	5 50	23 67	22 73	94 01	174 57
Peterboro', N	11	22	194	22	47 13	10 25	6 00	7 40	70 78	......	......	1 02	......	75	16 80	......	18 57	52 21
Peterboro', W	40	2	60	6	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Prescott	46	6	349	10	10 00	7 75	10 00	11 80	39 55	1 90	......	25	3 65	3 20	......	3 50	12 50	27 05
Prince Edward	405	106	2,895	166	165 82	104 50	64 00	206 81	541 13	11 95	25 00	12 92	26 25	15 35	4 35	274 38	370 20	170 93
Rainy River,	120	72	1,390	91	45 45	33 75	55 00	132 41	266 61	21 00	21 40	5 95	9 50	5 50	35 35	44 55	143 25	123 36

REPORTS OF ONTARIO WOMEN'S INSTITUTES, 1911-12.—Continued.

Institute District.	Membership.	No. of meetings held.	Total attendance.	No. of papers read or addresses delivered.	Receipts.					Expenditure.								
					Cash on hand per last Report.	Members' fees.	Grants.	Miscellaneous.	Total receipts.	Expense for meetings.	Officers' salaries and expenses.	Postage and stationery.	Printing and advertising.	Lecturers' expenses and wages.	Books and periodicals.	Miscellaneous.	Total expenditure.	Balance.
					$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Renfrew, N	163	77	1,379	116	92 88	39 00	62 00	85 00	278 88	5 00	25 00	6 52	7 00	7 00	19 68	75 83	146 03	132 85
Renfrew, S	4	10	1,082	7	......	4 50	3 00	......	7 50	......	......	21	......	......	1 30	3 00	4 51	2 99
Simcoe, C	280	138	2,573	222	151 04	71 50	102 00	83 78	408 32	11 50	59 00	11 11	7 85	16 95	42 97	116 90	266 28	142 04
Simcoe, E	242	79	1,808	115	58 70	52 00	72 00	146 18	328 88	28 13	29 75	9 28	16 70	8 50	2 81	82 67	177 84	151 04
Simcoe, S	152	61	1,278	83	58 24	43 50	56 00	4 26	162 00	1 50	10 00	5 22	10 25	12 20	6 00	23 25	68 42	93 58
Simcoe, W	211	88	1,950	129	118 34	49 00	68 00	112 00	347 34	19 38	15 00	9 98	16 30	24 85	31 85	106 38	223 74	123 60
Stormont	34	11	219	13	16 72	5 00	10 00	5 65	37 37	3 00	......	70	......	......	......	18 00	21 70	15 67
St. Joseph Island	50	23	470	31	82 66	16 75	22 00	148 21	269 62	4 40	12 50	3 36	2 25	4 50	15 00	203 40	245 41	24 21
Temiscamingue	213	131	2,219	166	217 99	54 75	73 00	139 64	485 38	6 90	30 00	10 57	2 00	8 35	41 05	121 90	220 77	264 61
Thunder Bay	267	91	1,882	102	84 98	62 50	89 00	134 75	371 23	8 50	25 00	13 23	26 70	4 85	26 70	101 12	206 10	165 13
Union	81	24	440	25	89 98	19 00	50 50	29 15	188 63	3 86	28 00	1 76	4 00	9 45	15 88	31 35	94 30	94 33
Victoria, E	228	86	2,343	121	68 95	58 00	73 00	32 29	232 24	33 42	40 44	13 41	8 00	24 50	4 70	41 58	166 05	66 19
Victoria, W	361	131	4,569	199	84 49	109 50	91 00	338 48	623 47	37 43	64 80	19 48	41 90	9 30	14 96	234 42	422 29	201 18
Waterloo, N	206	61	1,492	69	109 64	56 25	68 00	166 67	400 56	24 70	37 00	11 15	11 00	26 70	1 70	112 72	224 97	175 59
Waterloo, S	369	89	2,143	118	281 36	99 50	68 00	391 43	840 29	76 98	56 65	16 62	15 13	19 30	......	266 21	450 89	389 40
Welland	421	114	4,231	138	274 49	91 75	147 00	263 39	776 63	12 18	76 00	20 08	22 70	16 65	51 87	324 65	524 13	252 50
Wellington, C	221	104	1,814	119	125 03	61 50	86 00	85 50	358 03	27 05	34 25	9 02	26 08	16 05	1 88	120 38	234 71	123 32
Wellington, E	193	84	2,123	110	84 00	61 50	83 00	113 40	341 90	10 70	32 00	14 50	19 40	56 85	1 80	69 36	204 61	137 29
Wellington, S	174	66	1,643	130	102 18	44 00	71 00	38 47	255 65	1 50	33 00	7 31	9 35	3 10	39 05	47 97	141 28	114 37
Wellington, W	98	50	988	69	169 72	22 75	76 60	167 95	437 02	20 65	49 70	8 31	14 00	6 05	55 70	91 15	245 56	191 46
Wentworth, N	406	118	3,517	193	232 30	103 25	91 00	197 43	623 98	43 54	20 00	15 59	25 60	22 70	10 10	293 78	431 31	192 67
Wentworth, S	273	102	2,549	132	149 54	101 75	136 00	74 54	461 83	49 30	40 70	23 17	25 85	31 70	2 50	67 25	240 47	221 36
York, E	453	107	3,885	166	234 19	116 75	92 50	256 64	700 08	40 33	39 80	20 34	27 25	9 54	15 00	162 59	314 85	385 23
York, N	318	125	2,885	176	206 34	86 50	101 00	93 05	486 89	21 50	64 75	15 90	31 25	10 78	4 65	124 76	273 59	213 30
York, W	297	102	2,331	120	65 96	65 75	93 00	122 50	347 21	38 31	30 60	17 60	27 00	35 15	5 37	90 67	244 70	102 51
					$	$	$	$	$	$	$	$	$	$	$	$	$	$
Totals	20,861	6,976	177,342	10041	10,494	5,299	6,233	15,076	37,102	1,776	2,831	905	1,477	1,370	1,245	12,940	22,544	14,558

TENTH ANNUAL CONVENTION

OF THE

ONTARIO WOMEN'S INSTITUTES

The Tenth Annual Convention of the Women's Institutes of Ontario, held at Toronto, November 15 and 16, 1911, was most successful, both in respect to number of delegates in attendance and quality and variety of addresses delivered.

The morning and afternoon sessions were held at the Guild Hall in McGill street, Toronto, and the evening sessions in the University Convocation Hall.

Mr. G. A. Putnam, Superintendent of Institutes, presided at the opening session and the proceedings were commenced by singing "O Canada." Mrs. A. Hicks, Toronto, presided at the piano.

THE CHAIRMAN:—To meet face to face again with the representatives of the Women's Institutes is indeed an inspiration. I can truly say that I am delighted to see such a large gathering here this morning and I am impressed with the importance of the work in hand when I see such numbers of earnest, capable workers before me.

The women who are behind the work have made possible what has already been done. Who can say what the future of this Women's Institute is to be? We have already accomplished a great deal, but greater things are in store for us. The results will depend, ladies, not so much upon what we do in the Department of Agriculture in Toronto as upon what you do in your respective organizations.

The success of a Branch Institute, or the work of a District Organization depends upon the energy, capabilities, tact and aggressiveness of some two or three women in each locality. It seems necessary to have such women in each centre, if we are going to make the work a decided success.

The question before us this morning is "Business Methods in the Institute," and without further remarks upon my part regarding the necessity of business methods in our work, I shall call upon two or three persons to take part in the discussion of this very important topic. If you are not sure as to the exact procedure, do not hesitate. It is better to do something and make a few mistakes than to be inactive. (Applause.) Do it in some way, to begin with, and take advantage of every opportunity to learn better methods, then you will come out all right in the end. What we are most anxious about is, not how you are to do a thing, or what you are going to do, but the spirit behind it. We know you have a right spirit in this work, and we, therefore, have very little to fear as to its success.

BUSINESS METHODS IN THE INSTITUTE.

MRS. H. J. SCRIPTURE, Brighton: When I saw this item of business on the programme, I thought, "Surely, everything is made so clear in the Hand Book and in the Record Book that there is no necessity for any remarks on the subject," and then I thought of the organization itself with so worthy an object and so well equipped with a good staff of officers, and programmes of general interest provided. By general interest, I mean something that will interest everybody, not one or two or three or a dozen, but every member of the Institute. You should have these programmes tactfully distributed among the members for working out. Understand what I mean by tactful—give the right subject to the right woman. Surely such an organization will not only attract women, but will hold them.

I have been at meetings where members would sit through the whole session and speak but once, and that a feeble "Present" in response to the roll call, when every member was expected to respond by asking a question of general interest or telling some new method she had discovered, some little hint, some new recipe, something that was going to be helpful to the meeting. Members who keep their knowledge to themselves are not helpful to the Institute. It is these members who try the patience of the president. Our programmes should be so far-reaching that they will draw out these members, so that they will be helpful to the meeting.

Not only the president, but the secretary has an important part to play in the success of the meeting. First of all, her minutes should be not only a collection of items, but they should be interesting and spicy, and they should be prepared on the evening after the meeting that is held in the afternoon, when everything is fresh in her mind. To the secretary is largely due the increase in membership.

Our meetings are held in the homes of members in various sections of the territory, and our hostess usually invites her neighbors. Before the close of the meeting, when everybody, except the Secretary, is enjoying a sandwich and a cup of tea, the Secretary goes to these neighbors and asks them to become members. They usually do. It is a good time to ask them when they are in a happy mood. Remember the motto: "If you know a good thing, pass it on," and surely those members who know a good thing can help to get others in.

Another item about making programmes interesting: I had a report recently of a very successful meeting at which the subject had been divided into five parts: The first item, "The Wife and Daughter at Home," was allotted to one member to prepare; the second, "The Wife;" the third, "The Young Mother;" the fourth, "The Mother of Growing Children;" the fifth, "As a Help to the School and the Teacher." The Secretary reported that they had a very successful meeting, the papers ran on consecutively; it was like a continued story.

Then the matter of raising funds seems to be puzzling for many of the branches. Some branches have been very successful. One branch got up a play called "The Temple of Fame" and the characters were all taken by members of the Institute, some of them gray-haired women who had never helped in anything of the kind before. I will not go through the details. You will get these from Mrs. George Carlaw of Warkworth. The receipts at the door were $152 and everyone who took part was allowed to enter free, so seventy-five had free tickets. It was so good that they were requested to repeat it.

Another branch got up a garden party on the lawns of one of the members and they took in $80. Another branch gave a supper at the Winter public meeting, between the afternoon and evening sessions. Many came in from the country and, as they must have their supper at some place, this made a very enjoyable time and the Institute made some money.

The branch that took in the $152 gave quite a sum to the Social and Moral Reform Association to aid in the suppression of the white slave traffic. They gave a good grant to the public library and bought new chairs for the town hall, and they paid part subscription for every member of the Institute for the "Canadian Home Journal," and they left a good surplus in their own treasury. Another branch sent a donation to the Sick Children's Hospital here in the City and something to the Muskoka Free Hospital and had a good balance left for themselves. (Applause.)

MRS. K. B. COUTTS, Thamesville: I did not come here prepared to say anything, but the question of business methods in the Institute has appealed to me because, as president of our district, I found that one thing lacking in several of our branches was business methods. I found that the secretary and president in many cases were afraid to assert themselves. They sat back among the members as if they were afraid the floor was going to give way under them, and it had a distinct effect upon the meeting. I said to them: "You are elected to be the head of this Institute. Go up to the front and be the head." It seems to me that the Institute loses a great deal by the timidity of the officers. Of course I do not think any officer should imagine herself the dictator, that would be a mistake in the other direction. We cannot build up a beautiful hat without a frame and we cannot build up a meeting without rules, and if the officers stand back and do not show themselves, it is a mistake.

In our own branch at Thamesville we have from the beginning observed the strictest rules. We do nothing except by motion, that is, we do not allow the president to settle things *ex officio*. Anything that concerns the Institute is done by regular motion. The president and secretary sit up in state at their table and everything is done according to the rules. We find that, in this way, we get through with the work on time. We have a president and two vice-presidents and a secretary. We have a committee for membership, whose duty it is to solicit new members, and the president asks all strangers present to join before the meeting breaks up.

We do not have refreshments. We think three meals a day is enough. I think serving refreshments in the afternoon is a mistake, it simply spoils your later meal and gives you indigestion. We have a programme committee, a membership committee, a musical committee and a literary committee of one who sees that each meeting is provided with a reading from a good author. The musical committee sees that we have music and the programme committee sees that the programmes, which are made out once a year, are carried out. (Applause.)

THE CHAIRMAN: Sometimes there is a lack of aggressiveness and at other times there is too much. I think it is better to err on the side of being too aggressive than to lack that very necessary attribute. In a few organizations the mistake has been made that all the responsibility is thrown on one or two persons and they have accepted that responsibility from year to year. Some organizations have been controlled or managed by one or two women for four or five years, and when they found it necessary to give up the work the organization fell flat.

I can name you a town in which there are forty-five women who stood up in a public meeting and said they were anxious to have the local Institute re-organized, but they could not get any person to accept office, and for that reason they have had no Institute for some five years. Do not make the mistake of accepting too much responsibility, but be aggressive in inducing others to do something.

Mrs. E. G. Graham, Brampton: Is it not so that some Institutes are run in a free and easy way and that suits them best? We are very easy in our Institute. We are not parliamentary, but we get along beautifully.

The Chairman: That is right. Do your work in some way, but be sure you are always doing something.

Mrs. T. M. Stewart, Bobcaygeon: A few words regarding district presidents may not be amiss. The position is one not to be assumed lightly, as an ornamental frill, for the duties require much time, thought and attention.

It is in the power of the district president to greatly advance the progress of the branches in her district and extend the many advantages to be derived through our Institute. It is well for the district president to visit the branches as early as possible in her term of office so as to obtain a grasp of the various conditions existing. If the local secretary desires it, she may look through the books, accounts and list of memberships, and a few words of suggestion to the secretary may often be helpful in many ways. It is not necessary for the district president to take part in the programme of the branch visited, her work being entirely different to that of the lady delegates sent by the Department.

The duties of the district president are more in the character of a superintendent, having in view the conducting of the branches in the most attractive manner, best calculated to disseminate all that goes to the making of our homes comfortable and happy. With this great object in view, the monthly meetings of a few hours' duration need to be as varied and seasonable as possible. One long paper on such subjects as "The Lives of the Queens of England" does not provide an attractive institute programme—it is more suitable for a literary club. A short paper on the conveniences and labor-saving qualities of a sink in the kitchen, how to construct it and a rough estimate of expense, would be much more preferable for a country branch.

The introduction of household matters particularly associated with the work of the day, drawing out the experiences of the members, arouses interest and produces valuable information. No housekeeper is so good that she cannot learn from others and none so poor that she cannot offer some useful suggestions. Get the members to take part in the meeting. The little things of daily life are of more consequence to the housewife than all she can learn about the lives of the Queens of England.

The district president can encourage the branches to extend their usefulness, encourage the members to talk the Institute among their friends and always bring their neighbors to the meetings, and, in some cases, it is advisable for the members to propose the names of those to whom the secretary can drop a card inviting them to the next meeting.

Home making appeals to every woman in the land. Our Institute is not for the amusement of select little coteries—it is a strong, living, active force and every woman and girl in the country should be brought under its beneficent influence. The office of district president is one of responsibility for the welfare of the branches in her charge. It is not a mere ornamental position, but is certainly one of honor if duties are well performed.

Mrs. W. Dorrington, Alton: I think a very good plan for those who are timid is to have a roll call and let each member respond with some useful information concerning household matters or something pertaining to the household that she has found to be good. In that way she can pass it along and, if it is only a half dozen words, the speaker gains confidence, so that the next time the half dozen words won't seem so hard to say. I know that is the way I started out myself, and I am still nervous, but you do not see it. (Laughter.)

Mrs. L. A. Hamilton, Port Credit: With regard to business methods, it struck me as a new president of a new branch that it is not well to begin severely. It is better at first to keep as closely as possible to parliamentary procedure and then after you become accustomed to these methods you can allow yourself more latitude. I think that applies to everything. I know how it applies in piano playing; after one has got one's technic, one can allow oneself certain freedom. If you are particular about the procedure, you can have better order.

Mrs. F. Irwin, Garden Hill: When our branch was first organized we could not get any of the members to speak or even to take any part in the meetings and the roll call was instituted. We made it compulsory that everyone who came to the meeting must speak, even if it were no more than to say "yes" or "no," and now we are getting satisfactory results. If they do not respond to the roll call, we charge them a fee.

Mrs. J. McIlroy, Little Britain: Our president asked me yesterday morning if I would mention West Victoria at the Convention. We join with the Farmers' Institutes at our annual convention, and at our June annual meeting they join with us, and you would be surprised if you attended our yearly conventions in Lindsay. We also join with the Farmers' Institutes in running excursions; we share equally in the funds and that helps us out a great deal.

We have always had the roll call, but I must say we have never had any trouble with the members taking part. At our last meeting we were short of two papers for the first time since we organized five years ago. I have heard the ladies say that at some meetings they made it a rule to charge 5c if a member does not take part when her name was called. They could never make 5c out of it in our Institute. (Applause.)

Mrs. C. S. McGillivray, Picton: We have what we call a literary exchange. The lady who has the subject in charge has different items typewritten and given to the members of the Institute. They have a good chance to read it over and in that way they get accustomed to their own voice and when they come to the meeting they read it. We have found that a very successful method of dealing with the timid ones.

A Member: How often does this lady from West Victoria advocate calling the roll?

Mrs. J. McElroy: We call the roll at the close of every meeting.

The Chairman: I will now ask Miss Watson of Guelph, who has always been so ready and capable in assisting us in our Institute work, to tell us something regarding the Demonstration Lecture Course work which you remember was considered at our convention a year ago.

DEMONSTRATION LECTURE COURSE.

Miss M. U. Watson, Macdonald Institute, Guelph, Ontario.

You will remember that at various conventions the question has been asked: "Is it not possible to have a teacher sent out to give a whole series of lessons in one place?" This question has come up so often, that last year you appointed a committee to see if it were possible to further that notion of your own, because some branches had talked about this and even gone so far as to see if they could not make arrangements, but few really got to the end of arrangements because of the expense and because, also, of the difficulty in securing a satisfactory teacher for so short a time. Mr. Putnam has asked me to report on what has been done as a result of that committee appointment of last year.

In the first place, a tentative scheme was drawn up with three ideas at least in mind. The one was, to employ the full time of the teacher engaged, that is economically; the second was, to secure the co-operation of several institutes to use this teacher, and the third was, that the whole thing should be self-supporting. This tentative scheme in two forms was submitted to various institutes. It came back with the criticism generally that it was too expensive, that it was not feasible in many places. The whole committee met last May to discuss the situation and these criticisms and that discussion ended with Mr. Putnam's proposal to make certain modifications of the original scheme and to have the Department become responsible for the cost of trying out that modified scheme in one group of places; try it out to see whether it would work or not and also to discover the actual cost of such a series of lectures.

Various places which seemed to the Superintendent suitable for such an experiment were invited to form into groups of six and accept his offer, or rather make a formal proposal to accept his offer. He had several responses to that invitation, but finally Haldimand County, the first to get to work and make the application in form, was chosen, and each member of that group—Caledonia, Cayuga, Dunnville, Delhi, Hagersville and Canfield—entered into a contract with the Department of Agriculture as follows and I want to read you the contract:

Each of these Institutes signed this contract and the Department of Agriculture signed it. "The Department of Agriculture agreed to provide all the portable equipment necessary except the tables and chairs and the cook stove, agreed to defray the cost of the teacher's board, lodging and transportation; agreed to provide one teacher for the six Institutes who would give fifteen demonstration-lectures in cookery, one each week; agreed to furnish her assistant with any necessary written directions for local marketing or special preparations, at least a week before they were wanted. The whole group of Institutes, the six together, agreed to divide the week according to the most convenient transportation arrangements; agreed to provide any general printing or advertisements necessary; agreed to make an honest effort to have the attendance as large as possible. Each individual institute of the group agreed to provide any necessary local printing or advertising, to provide a suitable room equipped with the necessary chairs, tables and cook stove and to see that the hall was properly cleaned and lighted, to provide all the materials for the demonstration work, to provide an assistant to help the demonstrator and that assistant to be responsible for the opening up of the room, the necessary local marketing and the clearing up—a very important point. The Institute agreed to guarantee the sale of twenty-five course tickets of $1.00 per ticket, that is fifteen lectures for $1.00, and to appoint some person to keep exact account of the financial end of it. They agreed to pay to the Department of Agriculture $25.00, the amount charged by the Department for the course, and half of any receipts above $25.00. The Institute was at liberty to sell course tickets in addition to the twenty-five guaranteed and also to admit members and others to single lectures at ten cents per person." That was the contract which was carried out, or rather is being carried out.

When the contracts were signed, the question was to start the work. The teacher was engaged and equipped and then she was sent to make one round of visits to the six institutes to make preliminary arrangements and to help each centre to choose its lecture list. There was a list submitted to them and they were able to choose their series. They were advised, if possible, to stick to the tentative one submitted by the Department for the first few at least and make their variations in the last ones, and this has been done.

Now, while I am reporting, I do not propose to do all the work when we have on the platform the teacher who is giving that series of lectures. I am going to ask her to take her share of this report and tell you about the attendance, the number of classes and the way the centres manage their responsibilities and how she privately thinks the scheme is working. She has given seven weeks' work on it now and she must have some convictions on the subject. We will give her ten minutes to tell us her side of the question.

MRS. C. H. BURNS, TORONTO.

Ladies: It really is a pleasure to me to give you a report on my work, because it has been so very encouraging. The attendance has been better than I really thought it would be.

As Miss Watson told you, I visit the six different towns, one each day of the week, and I give eight lessons a week. That means that in Caledonia and Dunnville, where they have evening classes for the high school girls, I give two lessons a week at each place. In no case was the attendance less than twenty and that was at one of our weakest branches. The average was thirty-two. At some places, we have had as many as seventy-eight at one class. The attendance increased and that was very great encouragement to me.

So far I have given about fifty lessons. There were two or three places we had to skip and we will make the six lessons up by the middle of December.

The Institutes seem to be much encouraged with the work. In some cases they have to pay for the hall and in others the hall is given free. Where they have a City Hall or County Chambers, there is no charge, but at other places they have to pay a nominal fee. The Institutes also have to pay for the supplies and we find that the average expense to the Institute is from sixty to sixty-five cents a lesson. At the school girls' class, the supplies are double and the trustees of the school have very willingly met the expense, because they were anxious that the school girls should take advantage of this course. The students turn out very well. We have eighteen in one place and I think the attendance would have been larger were it not that they have an epidemic of measles. At Dunnville we have about thirty high school girls attending. All they have to pay for is the hall, the light, and the supplies they provide me for the cooking lessons.

I have nothing to complain of. Miss Watson asked me the other night if there were any difficulties and I said there were none whatever, because the ladies made the work so easy for me in every way. They did everything in their power to provide me with the necessary articles and had the supplies ready for me when I arrived, and that means a great deal.

What struck me most in the work was the enthusiasm shown by the ladies of the different branch Institutes. In Canfield, one of the weakest branches, the ladies are most interested, and they provide the supplies free; each lady takes her turn in giving the supplies and they do not seem to mind the expense, they are so anxious to get on with the work. The hall was given free and a lady sent a load of wood for the fire, and they are under absolutely no expense.

In the larger places, they give their list of supplies to the stores and one lady sees that the supplies are there at the hall and assists me with the work and the cleaning up afterwards. Sometimes it is necessary for me to get a train shortly after the meeting and by having assistance to clean up, I am able to catch it. I like the work very much because of the friendly assistance I have had extended to me on every side.

MISS WATSON: That is one side of it. I think perhaps we have some representatives from some of these six centres and we would like to hear what they think about it.

MRS. J. W. OLDS, Caledonia: I am very sorry to say that our County President and our President are both absent through sickness, there being an epidemic of measles in the town. They sent me here to tell what our class is doing.

We have a membership of seventy in our Institute and we have sixty in the Domestic Science Course, each paying $1.00, and we have an average of ten who pay ten cents for the lesson. The president and three other ladies canvassed the town for members. The class is very popular and the membership tickets were so arranged that either the mother or daughter could attend. In most cases, the daughter attended.

The meetings are held in the Town Hall, the ladies furnishing the supplies. Each takes her turn in helping to clean up. We are all very pleased with Mrs. Burns, her talks are very instructive.

MRS. WM. THOMPSON, Canfield: We are very thankful indeed that the Government sent us such a capable teacher as Mrs. Burns. The work has been an unqualified success in the County of Haldimand and I would advise the ladies from every county to have the Domestic Science Course. It is really wonderful what Mrs. Burns is accomplishing. Canfield is the smallest branch and although last Saturday was a very stormy day—and anyone who knows the County of Haldimand knows we have sticky, muddy roads—yet, some of the ladies walked four miles to the meeting and they are thoroughly enthusiastic in the work.

Some of the supplies seem expensive and I suggested to the lady who had to get them that she ask somebody to assist her, and she said "No, indeed, I am getting far more than that out of the lessons." You see they are delighted with it.

I had the pleasure of having Mrs. Burns stay with me last Saturday and she demonstrated at the meeting on lamb chops. I thought I would not dare cook the lamb chops until Mrs. Burns arrived at my home to show me how, and I knew my husband was expecting lamb chops for dinner. Mrs. Burns was in time to cook them, and although I pride myself on being a good cook, my husband said the course was worth more than the dollar, just to know how to cook lamb chops in that way.

I thoroughly enjoy every word that is said about the course and I wish more Institutes were taking it up. I recommend it to all the ladies.

MRS. J. BADGLEY, Canfield: I belong to the Canfield Branch and we think Mrs. Burns is an excellent and capable teacher. When the work started, we were to guarantee twenty-five members, but we did not do it. Mrs. Thompson said, we will have the meetings anyway and we appointed a committee to canvass, but it happened that the committee did not understand what they should do and they did not canvass as they should have and at our first meeting we only had ten. It was very discouraging. But, however, we went on with it and at our last meeting we were told we were to have the twenty-five $1.00 members or Mrs. Burns did not know whether Mr. Putnam would allow us to continue, and one of the ladies said, "Mr. Putnam is a good-natured man and I guess he will let us continue." There were thirty in the meeting and I asked how many would become dollar members and six, one after another, stood up, and that made the twenty-five. Now the work is going on splendidly. We are furnishing the supplies and we do not consider it any trouble. We had over thirty at the meeting and they are all eager to hear the lectures.

THE CHAIRMAN: The members of these Institutes, it seems to me, are rustlers. At one of them sixty out of seventy are dollar members and they have an average of ten single lecture members in addition; that looks as if all the Institute turned out.

I have no doubt that if we had representatives from the rest of the six Institutes, they would talk very much in the same way, judging from the private reports I have received.

We always have to pay for our experiments, but you will be pleased to know that $25.00 from each Institute and half of the receipts above that $25.00 covers about half the total cost to the Government.

Now to sum up, we believe that this particular experiment is working well. In fact we will go farther and say, we believe it is a great success. We believe also that this sort of teaching can be carried out in other lines besides cookery. I know of various places that would like sewing lessons conducted in much the same fashion. One place would like a whole series of lectures on home nursing and so on. For a beginning, this is very good. We believe also that, if the price of the lessons were doubled (and remember a dollar for fifteen good lessons from a trained teacher is unreasonably cheap), and thirty course tickets guaranteed, that the whole business would be about self-supporting and we think you would have no trouble whatever in financing such a system of teaching. We see no reason why this scheme of teaching should not spread, systematic homemaking teaching, throughout the whole Institute organization.

As Miss Watson stated to you, we assumed the risk and expense of this initial course. We decided to lower the price until it would appeal to a group of six Institutes. We were fortunate, we think, in locating it in a part of the Province where it could be worked out so well. I gather from the correspondence which we have from a number of other sections that similar work could be organized with little effort on the part of the local people and it could be made practically self-sustaining. I think if you canvassed the ladies in the district where the course is now being conducted, you would find many of them say "Yes, we would gladly give $2.50 for this course." If it is worth anything at all, it is worth $2.50, and I think $2.00 per member, together with half of what you may receive from occasional visitors who would pay ten cents per lecture, would cover the total expense of the course. With the co-operation of the local officers, we may introduce the work not only along cooking lines, but sewing. I am more than pleased with the success attending this initial effort. It is the beginning of a line of work which Institutes could do for themselves, but which evidently require some general directions and some encouragement from a central point. Whether it be finally decided to conduct this work from my Department or from another centre, makes little difference; but we are anxious to assist and to see that the women have the advantage of this education which can be made of such great value not only to the girls but to the women who are already experienced housekeepers. Many people think that a woman who is already a good housekeeper has very little to learn from those who have training along domestic science lines. Give me a class of successful housekeepers for an enthusiastic appreciative audience.

We have with us Dr. G. C. Creelman, of Guelph, the man who gave the Women's Institutes such valuable assistance in the early stages of the work.

ADDRESS.

Dr. C. C. Creelman, O.A.C., Guelph.

Ladies,—It gives me a great deal of pleasure to be here this morning and I say that sincerely and from the bottom of my heart. Mr. Putnam came to me some time ago and was kind enough to say that he felt a convention of the women workers from the rural places of Ontario would not be complete without having me upon the programme.

In conference we discussed the matter and decided that one of us should go to the meeting of the American Association of Farmers' Institute workers, which is assembling at this time in the City of Columbus, in the State of Ohio. Mr. Putnam would not listen to his being absent from this organization for a moment and it was decided that I should go, but when I learned this was the week of two of our greatest organizations in Canada, the Women's Institutes and the Horticultural Show, I decided that my work was at home and that it would be a greater privilege for me to be permitted to speak to the Horticulturists assembled in St. Lawrence Market and say a word in The Guild Hall to the Women's Institutes. Hence it gives me a great deal of pleasure to be here and to see so very, very many assembled. It is a wonderful change from the small beginning that was made a few years ago.

I am not going to make an address, but will merely say a few things that have come into my mind. First, I will speak of the possibility of the work which has been begun by Mrs. Burns. It will reach out and out and out to things which I see in my mind just as clearly and distinctly as can be, that will come in the future from this movement which has been inaugurated.

I saw the Farmers' Institute work start with a great deal of opposition and with a great deal of scoffing. Some called it a political dodge, others said they did not want to be educated and that the boys would be educated away from the farms. Some farmers said they had made a good living by the sweat of their brow in manual labor on the farm and what was good enough for them was good enough for the boys, and that the work of the Agricultural College was good enough for the *gentlemen farmers* of the country, but, so far as they were concerned, the Agricultural College and the Dairymen's Association and the Bee-Keepers' Association and the Poultry Association and they Vegetable Growers' Association—they would have none of them. They could do without them.

I am glad to say that day has passed. The day for criticizing these organizations has passed.

What is the greatest thing that has taken place in practical agriculture in the last ten years in the Province of Ontario? Simply the appointment of graduates of the Agricultural College to go into the Counties as County representatives. First six were appointed, then three more, then two more, then three more and then six more and then two more, within the last two weeks, making twenty-two in all—twenty-two Counties in the Province of Ontario in which there is a young man from the Agricultural College who lives in the County Town, and who is paid by the Government and the County and who gives his entire work for the benefit of the farming community.* He goes into the high school four half days in the week and teaches the young men from the farm things which these young men ought to know and which will benefit them in their work on the farm. That agricultural representative has now come to be one of the leading men of the community and in one instance something has been done which was never before heard of in rural affairs: In one County of this Province, that young man who has been in his County less than twelve months has so impressed himself upon the representative men of the County and the County Council assembly, that they have voluntarily and without any coercion, voted that young man (in Lambton County) an addition to his salary of $750 a year.

I see no reason why this scheme of teaching cookery, that has been tried out in the County of Haldimand, should not become common throughout the length and breadth of the Province, and the time will come when the Government or the County and the Government will combine to place in your midst permanently, teachers to instruct you in this work. If this work is good for one week or two weeks, it is good for all time and the time will come when it will be possible to place someone in your midst all the year round so that you can have three or four demonstrations a week, and the balance of her time may be given to the individual, talking with the mother or the daughters on their work, and to the country girls in the schools. If that is true, who is going to get the first County representative, assisted by the Government, who will be permanently in your County to do work of this kind? Those who first have helped themselves. When we came to pick out the first County Representative after Sir James Whitney had made his manifesto that he was going to do these things for agriculture, and that the time had come when the work of the Agricultural College must be carried to the people by the men who had had the advantage of a course at this Institute, he said: "Where are the Counties that have shown a disposition to meet us half way in this work? Where are the Counties where the school inspector has been trying to introduce a little agriculture into the schools? Where is the County where the teachers have been alive to the possibility of teaching the boys and the girls the names of the common flowers, and the common weeds, and the common trees of the wood, and the common insects that do damage to the crops, and the beautiful insects which may be collected in large numbers instead of collecting postage stamps? Where are the Counties that have done these things? Show them to me and we will give them the first representatives, and if the representatives are going to do good work, let them begin there."

I say to the ladies through you, Mr. Chairman, that the Women's Institutes in those Counties which are prepared to take up this work of domestic science and carry it into the by-ways and high-ways, are the people who are going to get representatives. Macdonald Institute should be doing that bigger work and now, for the first time, they are prepared to send out matured women who have gotten this education and who are capable of carrying the gospel of domestic science to all the people. Thanking the organization, through you, for the privilege of being able to break into your programme, I wish you God speed and a very happy convention. *(Applause.)*

THE CHAIRMAN: I feel that I owe the delegates an apology. Why should the Government or the County Council or the Department of Education or of Agriculture vote thousands of dollars to place young men in Counties to look after the *men's* work, and to vote money for short courses in stock judging here and there, and then I or others come along and *suggest* to you that this very important work of Domestic Science instruction be financed entirely by the ladies. It was necessary for us to demonstrate the feasibility and the practicability and the value of this work before we could present a strong case. We have done this.

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* In June, 1912, several representatives were appointed to new territories. At the time of going to press, we have thirty permanent representatives, and four appointed for a limited period. Most of the permanent representatives have assistants.

It has been suggested that I appoint a committee to bring in a resolution regarding this whole work. I think we can make a strong case and present our side of the question with great force, based upon what has already been done, to the powers that be, and we will be justified in doing so.

INSTITUTE PLANS.

Miss L. Reynolds, Scarboro Junction: I feel that you want something new. If we could always be original and give new ideas, it would be a great advantage. I have been asked to say something of programmes and literature. I do think we should be improving all the time and our papers should be better next year than they are this year, and in order to have better papers we must do more reading. One of the great troubles in our rural Counties, where we have no libraries, is the want of more reading. I think there is a work for us to do in providing suitable information and preparing our papers. We must keep up-to-date in order to give good papers, and that means reading and thinking. There is no use depending upon our own ideas, we must gather and glean them from wherever we can. By doing this we will be more versatile and have a broader outlook, and these ideas will become our ideas after we have once assimilated them.

In preparing a paper for an Institute, do not copy from someone else. Think it out for yourself and try to give them something that will be original. In East York we are rich and we always have money. I think an excellent way of spending that money would be to have an encyclopaedia where we could get all the information that we would require on different lines. A year ago we tried an experiment of having a competition in essay writing. We asked each branch to have an essay written and then we asked a competent judge to criticize these essays for us and give us the criticisms, so that we could read the essays and then take the criticism and see where we failed and how we could improve our literature. It was not the success I hoped it would have been.. Another thing we found very useful was exchanging programmes, taking a programme from one branch to another branch. If we have good papers in one Institute, why should we not pass them on to another Institute and have the papers utilized more than once. Many of our good essays are read once and then laid away in a drawer and forgotten.

All progressive Institutes should have their programmes printed and have them ready for the new year. Do not wait until it is time to start with your first meeting. Have your programmes ready and make them interesting. You must have enthusiasm. We must feel it is a great work we are engaged in and we should see that we do it well. If we are going to do our best, we must work. We certainly have done great things, but there is no doubt we can do far greater things than we have done.

We have been thinking of having medical inspection in our County schools. We will probably have one of the nurses from the Toronto schools go out and give addresses at our different Institute meetings so as to work the people up to the importance of the matter and show what can be done.

Another thing we have been doing is to have exhibits at our Fall Fairs. One of our branches went to the school six months ago where the teacher was not enthusiastic on gardens. They went there on Arbor Day and took their spades and shovels. One of the trustees was good enough to have some manure sent there, and they made a garden. They went to a florist's and got plants and the children were to be given prizes for the one that took the best care of the gardens. They did not water and care for them as we hoped they would during the vacation. However, we gave each of the rooms a picture and the mothers of the children were invited to the schools and the members of the Women's Institute took along a lunch of sandwiches and cake and home-made candy and nuts and apples. The children gave a programme and the ladies presented the pictures and afterwards we served lunch. It was a huge success and in a great many ways it helped to make the people feel enthusiastic in the work we are doing.

Mrs. W. H. Taylor, St. George: I represent North Brant. We have nine branches belonging to our society and we have a most encouraging report. The societies are all doing well and have plenty of money in their treasuries. We have our programmes printed.

Our society has twelve directors for the year and they meet and prepare the programmes for the entire year. We know just what we are going to have. I will give you some of the items. The first one was "Housekeeping fifty years ago and at the present time," and I do not know when I enjoyed anything as well as I did that. Members were asked if they could remember anything that occurred fifty years ago, and I can remember quite a few things that were said. Then we had "Children, Their Care, Training, and as Future Citizens," by the Rev. Whitlaw Ashford, Secretary of the Children's Aid Society, Brantford. We have roll call once in a while. Last month we had a splendid paper entitled "Honor and Honesty." Another paper was a discussion on "Saving Steps" and a paper on "Wisdom in Shopping," and then we had an afternoon with Dickens.

Once a year we have the young ladies take charge of one of the meetings and we never know what to expect when they take charge. Last year they came with their fancy work and you never saw such fancy work. They treated us to a lovely lunch. This year we do not know what to expect and they will not tell us.

We have been busy raising money to get a new piano and our secretary is now in the city to purchase it. The young people are to give a drama a week from Friday in order to get the balance of the money required.

We take the Home Journal. Our hall is at the back of our Public Library and we have access to that library. At our branch at Onodago they have an organ.

Mrs. Wilson, Kingsville: The subject of "Programmes and Literature" is, I think, one of the best subjects that could be brought up.

Delegates are sent here to learn what is going on in other Institutes and to try to bring home some useful information that will be helpful in carrying on the work at home. Kingsville Branch, which belongs to the South Essex District, arranges the programmes for its own meetings. We feel we know the ability of our members. We appoint about ten members, including the president and secretary of the branch, to meet at the home of a member to arrange the programme for the year. We have a membership of 114. We hold our regular meetings at a member's home. At our annual meeting volunteers are asked to offer their homes for the year. The interest is so great that we generally have twice as many homes offered as are necessary. At the annual meeting we also appoint a programme committee to select subjects and arrange them for suitable months. This committee assigns subjects to different members, using the precaution of assigning a suitable subject to each member, that is, we assign a subject such as "Training or Feeding Children" to a mother who has had experience in that line; "Place of Music in the Home" to a member whose talent for music has been developed, etc. Now as England expects every man to do his duty, our committee expects every member to do her's, so they never consider it necessary to consult a member before printing the programmes, and there is very rarely any disappointment. Occasionally a member will send word that although she is incapable of preparing a subject, she will read it if prepared by some capable member, and once in a while some member will prepare a paper who lacks the nerve to read it.

Our rules and regulations are printed on the back of the Membership tickets, one of which is: "Any member to whom a topic is assigned must give it in person or send it written out to be read by the Secretary of the Branch." Each member is presented with a printed programme bearing the date and place of meeting, also member's name who is responsible for topic, which gives plenty of time for preparation. We have ladies from sixteen to seventy who enter heartily into the work and I am sure their addresses and readings have been heartily enjoyed and appreciated by all.

We have had open discussions upon subjects such as "Books," "Allowances for Children," "Salads," "Pickles," and such like. Through the question drawer agency many useful hints were brought out. Also we have an experience meeting once a year, each member relating helpful methods learned at the Institute.

We also have a representative programme committee, as one branch consists of town and country ladies. We have this committee appointed from the various concessions, and also one from town; at each meeting one drops out and another is appointed. They are responsible for the readings, recitations and music. The result is a very interesting and useful programme is rendered. Members so far exhibit a spirit of willingness to assist.

Regarding literature, we have not a circulating library, there being a good public library in town, but a number of our members subscribe for the Canadian Home Journal, and recommend it as the best literature for an Institute.

Our branch takes a penny collection at each regular meeting, which furnishes the flower committee with funds to cheer and brighten the sick members. When a member loses by death a loved one, the secretary always writes a letter of sympathy which is much appreciated. We always have roll call before closing—which gives an opportunity for the late members to respond. We serve lunch at each meeting and enjoy a good social chat.

Our branch is flourishing through the co-operation of members and officers. No branch will flourish where members feel all that is required of them is to pay dues and occasionally visit the meetings.

During the last two years we have raised money through socials, etc., for several purposes: We gave $50.00 to assist in erecting a Tuberculosis Hospital in Sandwich, which has not been erected as yet; also $100 in erecting a combination drinking fountain in Kingsville, which is much appreciated by the horses and dogs, as well as the people. We were not able to purchase a combination fountain with bubbler attachment, we have had the bubbler attached since. We have ordered a gas light to be placed at the third concession, where a number of our members take their street cars, and now arrangements are made to assist our sister branch at Amherstburg in the work they have undertaken, which they will doubtless acquaint you of to-day.

On our third anniversary last February we had a free oyster supper, to which we invited our husbands. We fully realize that to obtain the good-will and sympathy of our men is fully expressed by the poet who says:

"We can live without poetry, music and books,
"But civilized man cannot live without cooks."

We purpose celebrating our fourth anniversary next February—we have not decided yet how. We have no cliques in our society, a friendly feeling existing between town and country ladies. We never let our meetings interfere with our church work.

Mr. Putnam: I am very sorry that more use cannot be made of these papers on which so much time has been spent and in which so much ability is shown. We shall be pleased to receive them at our office.

Mrs. E. G. Graham, Brampton: A lady at one of our Institutes, who prepared a paper, told us that when she was doing it she drew a waggon wheel in the centre of a piece of paper. In the centre of the wheel she wrote her subject and, as she went about her work, she would think of a heading and add a spoke to the wheel, and by the time the wheel was finished she had her paper.

We should take up the question of minor financial matters. I have no doubt most of the ladies here know how to endorse a check, but there are a great many throughout the rural districts who do not know. This was brought to my mind by a gentleman who said: "Why don't you women learn how to do these things?" Another matter we should take up is legal transactions, and I suppose the lawyers' wives here will not like me to say that, but there are certain little things we should learn about legal matters, such as when to keep out of law, and I think these subjects should be discussed.

One lady mentioned needle work. At our branch last year we had a competition in needle work and prizes were given. We were delighted with the results.

A Member: Our Institute employed a banker to help us out in the matter of endorsing checks and banking. Next year we are to have a dentist and a doctor on our programme and two ministers. We are bringing all classes into our work. We exchange papers by visiting neighboring Institutes; the visitors generally give the programme and the Institute visited supplies the lunch.

Mr. Putnam: As the Institutes increase and command more and more attention, I find that business and professional men and those occupying public positions are becoming more and more ready to co-operate with the Institutes. It has been a pleasing feature of the work to note the increasing number of men who are giving the women the benefit of the knowledge they have—lawyers, doctors and dentists. We have a bulletin in preparation by the Dental Society. It will supplement the work which has already been taken up along dental lines. The Association of Dentists are prepared, after receiving an application from a Woman's Institute or any other local organization, to send a speaker to give an illustrated lecture on dentistry or the care of the teeth. We were very glad to have their co-operation and we will hear something more on this point before the Convention is over.

Mrs. M. N. Norman, Toronto: I think no one of us can have an idea of what the Institutes of Ontario are going to do for Ontario and for Canada. One of the ways in which we can be helpful to each other in preparing papers is by gathering newspaper clippings. I believe in printed programmes; they give class to an Institute. Every Institute is worth a printed programme and each woman feels a responsibility when her name is printed on the programme; she wants to live up to the obligation.

I consider it a good plan to have the subjects run in a series. Some person spoke this morning of one of the best things I have heard of and that was the idea of having the girls taught their responsibility with regard to their place in the home, with regard to their wifehood and with regard to their motherhood, with regard to young children and older children and with regard to her responsibility to the country as a whole. If you can take subjects and run them in a series like that, giving a number of individuals a certain part to take, you can see where the newspaper clippings would come in. You can scarcely pick up a newspaper or magazine or book but what you will find something that will have a bearing on some one of the subjects, and if you would keep a book and paste these things in and carry them with you, it would be a great help.

I believe in lending libraries. Throughout the whole of the country to-day there is growing among women the recognition of the necessity of teaching physiology and psychology and there are books dealing with these subjects which are not found on the shelves of the ordinary circulating library. Every Institute should have a circulating library of its own containing books that cannot be gotten elsewhere. Someone has said that there were things in life more necessary for women to know than things pertaining to literature and so on. That is true limitably. I believe all the women of the country should come in contact with the big things in life. I believe every woman in the land should know something of the poets and of music and of the literature of the world. If the boys and girls in the neighborhood suggest getting up a dramatic club, do not hinder them.

Miss Ethel Robson, Ilderton: I should like to emphasize the last words of Mrs. Norman about putting ourselves in touch with the big things in life. There is one thing about this Institute this morning that I feel disappointed over: We have heard continually about *do, do, do,* and I should just like to emphasize one word—*be, be, be.*

The Chairman: The next feature that we will take up is "Extending and Encouraging the Work," and I will call upon Mrs. Tyler of West Lambton.

Mrs. J. Tyler, Oakdale: West Lambton is indeed a fair and fertile land, so it is not strange that an excellent organization like the Women's Institute thrives exceedingly.

We have eleven branches, with 270 members, and there is room and a developing demand for many more. Most of this growth has been apparent during the last two years, no less than five branches organizing during the winter of 1910, with one in the summer of 1910, and another in the summer of 1911. But there had been patient and faithful work done by a few interested women during the years of discouragement following the organization in Brigden in 1905.

One source of our success has been the efficiency of the Delegates sent by the Department. We depend very completely upon our delegates, and when they come we do not do much ourselves. Perhaps we shall be criticized for this, but while claiming for West Lambton women a fair share of talents, we find that comparatively few women are adapted by nature and training for public speaking. Moreover, no local woman can afford to discuss certain topics which ought to be dealt with, or administer to iniquity the rebukes it deserves. An outsider comes in and does real good by a frank statement and instruction.

Our District funds provide for each Branch secretary a year's subscription to the Canadian Home Journal, and where there is lack of programme, it is read in the meetings. We look forward to the time when every Institute member will have her own copy of the Journal and, like the school children, will appear regularly and promptly with her book at the meeting where from cover to cover it will be studied just like a text book. We have not done so much exchanging of papers among branches as we would like, but we think if some of our best essays were sent to the Journal to be edited and printed, the benefit would be more general and it would be more effective than having the District Secretary circulate them.

We found the visit of the "Farm Special" on the M. C. R. a wonderful stimulus of interest in both Farmers' and Women's Institute work. We hope that the Demonstration Cars will come often and stay longer, and have house work as well as farm work exhibits.

This brings me to the best and easiest means of extending our Institute work, namely, newspaper advertising and reporting. The editors of West Lambton have proved able and generous allies in the work, giving, free of charge, to the District Secretary a liberal space in which to advertise the meetings at which Departmental Delegates are expected. We consider a full and glowing report of the early meetings of a series the most effectual advertisement possible for those later on.

Our District Secretary has such a genius for reporting that the President declares that the worse the meeting the better the report. Several of our Branches make a point of regular reporting to the local papers and we observe that these are the most prosperous branches.

I hope that with the many valuable lessons to be received at this Convention and with the stimulating effect which I hope to carry back, West Lambton will be able to take in the future as pre-eminent a place in Institute work as our legislative representatives always hold in the councils of our fair Canada.

Mrs. J. C. Richardson, Palmerston: Allow me to suggest a District Convention. Last year I found in West Wellington that by getting together we became aware of what each branch was doing. We had a very successful convention, and I would advise every district to have a convention and bring the branches together.

Mrs. J. Gardner, Kemble: I think one thing needed to extend our work would be to get a little more space in our official organ, the "Home Journal." If we had a little report from each place, and if these reports were put in alphabetically, it would be a great benefit. We have friends and workers in different parts of the Province and we would like to see what they are doing. We could look for Aylmer, Beeton, Cookston, Durham, and so on. We often work in a haphazard way. If we saw what other branches were doing, we would gain more practical ideas and we would have more common interests. I think it would be a wonderful stimulus in having the Institutes work together.

Mrs. Fowler, Burford: To extend the work of the Institute means that we must increase the membership. Possibly the increase of membership would be greater if the individual member were more active in this direction.

We must work as a household, unitedly, keeping in mind the importance of our purpose with the dignity our Institute deserves. We may not all be natural orators, but we can each invite another to join us in the work we feel is helping to make better homes and giving out broader ideas of every day life.

We consider one of the best ways of extending our Institute work is to interest each member. Our plan has been to appoint a large board so that all the thought may not devolve upon our President and Secretary, however capable they may be, then to arrange our programme for the year, choosing one good strong worker for each meeting to act with one or two weaker ones, these having the privilege of asking anyone in the Institute to contribute to the programme for that month. In this way every member has something to do, consequently the work goes on.

Encouragement is the result of a knowledge of duty done. When we consider to what extent our efforts as an Institute influence those with whom we come in daily contact, we are urged to work harder, teaching and being taught, seeking to obviate all difficulties in the easiest possible manner and so to keep down discouragement. Keeping in mind our beautiful motto. "For Home and Country," what higher, nobler aim could we have than to unite our efforts with those of other Institutes and train our boys and girls to respect the cause that they may finally be prepared to take up the work we have started. It is always most encouraging to know the work is being done, and it rests almost entirely with the individual Institute member whether the organization to which she belongs is kept busy and progressive.

Mrs. R. G. Leggatt, Newboro: No speaker has struck our plan of increasing the membership. When we find our membership going down we pledge all the members at that particular meeting to bring someone with them to the next meeting. We began with nineteen of a membership and at the next meeting there were just nine women present and we felt something had to be done, so we asked those nine ladies if they would bring someone with them who was not a member to the next meeting. At the next meeting we had twenty-four; we tried it again, and at the next meeting we had forty-four. Now we have a large membership and a good attendance, so it is not necessary for us to do that. But if the membership goes down again, try this plan.

Mrs. C. E. Horning, Hannon: We are trying in one branch to establish a rest room for the ladies, a place for them to go to when they feel that they wish to read or get information. In our branch each lady is pledged to bring one new member with her or some lady interested in the work. In some of our branches they find the work rather discouraging. Sometimes too much work is left to the secretary, and I think that lady that said "be, be, be" illustrates just what we are trying to-day in South Wentworth. We want every woman to feel that down in her heart she is benefited by the meetings.

Member from Welland: We had a number of demonstrations during the year given by our young members. We had a demonstration in basket-making and crotchet work and some wool work and needle work, and altogether we had a good winter's work. We found it very interesting. People will turn out for a demonstration when they will not turn out for a regular meeting.

Meeting adjourned.

AFTERNOON SESSION.

Wednesday, November 15th, 1911.

MRS. H. ENDACOTT, Orangeville, occupied the chair. and the meeting was opened by the singing of the "Opening Ode."

THE CHAIRMAN: There is no Province in Canada equal to Ontario (and I have seen a good deal of some of the others). You may not get rich in money as fast as you do out West or in British Columbia, but all the while you are rich—rich in bountifully spread tables, rich in fruit and vegetables, rich in everything that you take a notion to work for—eggs, horses and cattle. Of course you have to work. but with the work comes the riches, the blessing of health, the peace that comes from labor well done.

One of the reasons that I love the Institute is the infinite variety of subjects we have to talk on—from the proper way of sewing on a button to the latest comet. The W.C.T.U. talk about whiskey and cigarettes, and cigarettes and whiskey, and whiskey and cigarettes, and cigarettes and whiskey. These may be very important things to the people that are consuming them, but, for a bunch of women, give me a change of subject. Then there is the Daughters of the Empire, they talk about the Flag and the Empire and the Empire and the Flag.

The Women's Institute has filled a long-felt want in the country and country towns. If you have not a desire to be nice to every one, then don't go. Be affable and good and try to help everyone—helping yourself incidentally. The reason for the existence of the Women's Institute is the old text, "Man does not live by bread alone, but by every word that proceedeth out of the mouth," and the talk, the spirit, the warmth, the love, the genuine hearty hand-shake that is found at these meetings redound to the good of the home.

I had the pleasure of being at a meeting of the Institute in Mono at a splendid farm place where they had ten children and everything else in proportion—hot and cold water around the house. cold water in the barn and stables forced up from a spring by hydraulic pressure; their potted plants were the largest. It happened to rain, so the men from the other farms hitched up and brought their wives; and in all there were over fifty enjoyed the hospitality of these people. Think of the life and sociability this meant in a quiet rural section on a busy day in July.

There are many ways by which we can retain interest and "boost" along our branches. I think the practice of giving recipes and talks on domestic work should not be tabooed. It is what the new member, and the newly married member especially, is looking for. One of the ways is to have an object to work for, and women do love to be raising money. The building of an hospital is a prodigious undertaking and requires a lot of money to keep it up after starting, but, if there is not something to work for, the meetings are apt to become tame. The work of charity is always with us, but if you do any work along this line, be sure you do it quietly and "Hide your light under a bushel." The practice of giving prizes for the best kept lawns and flower gardens is a good one. I heard a pretty story told by one who has received one of these prizes. They had an English boy who assisted in the gardening. Sometimes on moonlight nights they went out and admired the flowers. This night there was no moon and he said "Let's light the lantern and go out and look at them." Small wonder that she obtained the prize when she was able to enthuse an emigrant to that extent!

I would tell the lady who was asking for the secret of flower raising in the "Canadian Home Journal" that to love them is all right, but a few pails of rotted manure will do heaps more for them.

A walking club or a golf club would be a good thing for members of leisure, but by the time a woman has done her housework she has had exercise enough. One of our local branches entered into competition with Toronto and inaugurated a "Fall Fair" which was a great success, and must have taken an immense amount of energy and planning.

Then, best of all, we have this Convention, the gist of which we take home to our branches and firesides.

ADDRESS OF WELCOME.

MRS. JAS. L. HUGHES, TORONTO.

Madam Chairman, and Members of the Women's Institute of Ontario:

It is a very pleasing privilege granted me this afternoon to come here to welcome you to the City of Toronto. I want to tell you why I welcome you so sincerely. I have known of your work for a good many years—I think quite from its inception, but I have not been a member of one of your Institutes, although I have visited them now and then. I am thoroughly in sympathy with what you are doing and with all your purposes.

It is quite true that the civilization of any people is in proportion to the way the women and children of that nation are treated. We might go a step farther, and remember that all civilization has come through organization. The men have organized a great deal faster than the women. I am sometimes puzzled to know why men have put their brains together in the outside world and gone so much farther than the women have in our little home circles, but I have come to the conclusion that if you always look within you won't get very far. Sometimes the outside things run into our home life and cover it up and confuse it just as the leaves of a very prolific tree run off into other trees and fill them up and make no end of trouble. The outside comes into our homes and destroys the life and beauty in so many, many homes.

Instead of turning your thought into your home, and doing the same old kind of cooking of biscuits and beefsteak—just as grandmother cooked them, try something else. We have been living for certain standards and they have taken everything else away. All we have been taught to do in the household was to build up what would be destroyed in a short time. We make a bed up in the morning and the boys and girls drag it to pieces at night, and you prepare a lovely meal and in fifteen minutes it is swept off the table and you have nothing but soiled dishes. When you organize as women for a common purpose, you are elevating the universe. I want you to feel that and I want you to carry it home with you and if you do not believe it, keep thinking it over a while and say to yourself "I am right here in the home, but I am elevating the universe when I put my hand into another woman's hand and we join together," and then when the third woman comes in and a fourth and twenty and fifty, and when you get this splendid organization and learn to think and speak, you find the old superstitions and prejudices dropping off and you become new women in a new world. The same old world and the same old woman, but it is the woman opening up into what God meant her to be when he put a woman's soul into a woman's body, and if you do not get that enthusiasm and grow in your soul, you are not fulfilling the purpose God had when he made you.

Remember organization is the progress of civilization. Some people organize on other lines because their interests are different. You are upholding the standards of the purest homes that we can have, because they are country homes. Nine times out of ten you fail to realize all that a country home might become, simply because the woman in the house does not let the flame of love burn up as she might, with her mentality and power and intuition. Your organization is an opportunity for women to unfold and give the best they have from the standard they occupy, not to read a great deal and re-hash it for the benefit of other people. If you have found a new way to wash dishes, it is worth while for somebody else to get it. If you went and told your neighbor she did not do it the right way and you had a better way, she would rise up and say, "I have my own way and you have yours." But the moment you organize and one gives this recipe and another one gives that, they are all receiving and everybody takes them home and you get a little light into the darkness.

I have been a farmer's daughter and I know there was always so much to do that mother and the girls seldom went out, but we did go occasionally and visited. I like visiting if you have something to talk about, but, if you have not anything to talk about, did you ever notice how you run into all sorts of foolish things? This is a purification of the impulse to visit. You visit with a purpose, you visit a great many people and you get the best of everybody, for they won't bring their small mean things; the thing that has to be told with bated breath and behind the hand is not told at a Women's Institute.

I would like to talk to you all the afternoon if you would stand it, but I do want to appeal to you to learn and to make other people learn what a blessing it is to be organized, to use the brains and develop the soul that is in you and to make the name of woman and the work of woman known in the re-generation of mankind.

We welcome you as a city. I do not suppose the people down town know how warm and enthusiastic you are up here—all those business men that are supposed to make up the City of Toronto, but I am going to speak for them of something they do not know. I am going to welcome you because you are one of the best elements that can possibly be gathered together in the midst of our city for the re-generation and the uplifting and the development of civilization in the city and the country and in the world. I thank you. (Applause.)

REPLY TO ADDRESS OF WELCOME.

MRS. O. E. WHITE, MAPLETON.

Madam Chairman and Ladies:

A few days ago the Commander-General of this "Great Institute Army" found a gap in the firing line and over the long distance 'phone came the call for help, and out from the farm ranks of the "East Elgin Division" we stepped into the gap.

" Ours not to make reply,
Ours not to reason why,
Ours but to do and try—
To forward the Convention."

Therefore, it gives me a great deal of pleasure to voice the sentiment of every one present. We are indeed grateful for the eloquent, kindly and cordial welcome just extended us. It is a most gratifying privilege for the women to come to Toronto from the towns, villages and country places to attend this " Great Convention."

All honor to the founders of an Institution that makes possible this pleasure! We can never hope to pay the debt. But we can, by virtue—by morality—by a genuine appreciation of the fruit of their labor, we may hope to enjoy this blessing through our day, preserve it unimpaired, and transmit it to our children.

As we look into your faces this afternoon, we realize as never before that " Truth is Eternal." Its message is to every age. Woman is only in this century discovering her power and responsibility. This great gathering proclaims that women have banded themselves together to maintain the high moral standard of Canadian Homes.

Every bond that binds man to man or woman to woman is a new argument for the permanence of life itself, and gives us a new insight into its meaning. We as womankind no longer feel ourselves alone as isolated units in the world, but that we have stepped out into the sweep of the great social forces that make for the betterment of our sex and the uplifting of the race.

The change is due to the enlargement of the thought life of women. Though we may not be conscious of it, there is a deeper purpose in it,—An education in the highest art of living.

Many of the " Chambers of the house of life " were locked to us until opportunity through the " Ontario Women's Institutes " gave us the golden key. Through this gate-way, the country woman is supplied with information suited to her needs, bearing upon her every day duties; while the welfare of the family, both mental and physical, has always depended upon the fitness of the homemaker, no provision has ever been made to assist her in her task until a local Institute was organized in her neighborhood. The good results can be seen at every meeting by the desire shown to learn ways and means whereby the mother can do better by her children and homefolks, also a deeper interest has been aroused in the things that make for a higher and more wholesome community life. It broadens out and lifts up the thought-life and helps to dispel that narrowness of vision which is the natural result of living too close to one's self. We cannot live a selfish life without missing the true glory of living. We were made for social intercourse. It is the Divine enchantment, for it leads to more than itself and is the open door into the mystery of life.

This union of thought is not only a very beautiful and noble thing for Institute workers, but the realization of it is also the ideal for the State, for if citizens be friends (one in thought, one in purpose) then justice which is the great concern of all organized societies, is more than secured. Thus Harmony becomes the flower of Ethics and the root of Politics.

Comradeship is one of the finest factors as well as one of the strongest forces in life. When men or women face the world together, and are ready to stand shoulder to shoulder, the sense of comradeship makes each one stronger. "Each for All and All for Each," thus the local branch takes counsel from the District, and the District looks to the Department for help and direction to solve the great problem of better homes, brighter mothers, more wholesome children, and also to give to the state a future citizenship which will maintain for Canada the position she now occupies for morality and righteousness on the Honor Roll of nations.

The Institute life is pre-eminently a life of mental development. It is individual in its root and social in its fruit. It spreads from soul to soul by the naturally social impact of soul to soul. We are banded together in a common cause under common laws, striving to maintain the same high ideal which is meant to take effect in the Home and in the State. Thus society through its net-work of Institute branches, receives its new message with fresh inspiration for the homely tasks of every day, which after all make up the sum total of most of our lives. But let us not be discouraged. Carlyle tells us there is a perennial nobleness and even sacredness in work. The real desire to get work done will itself lead one more and more to Truth, to Nature's appointments and regulations, which are truth. Thus may work take on a new dignity and we are enabled to say with Henry Van Dyke:

"Let me but do my work from day to day
In field or forest, at the desk or loom,
In roaring market place, or tranquil room;
Let me but find it in my heart to say
When vagrant wishes beckon me astray:
'This is my work, my blessing not my doom,
Of all who live, I am the one by whom
This work can best be done in the right way.'
Then shall I see it not too great nor small
To suit my spirit and to prove my powers,
Then shall I cheerful greet the laboring hours
And cheerful turn, when the long shadows fall,
At eventide, to play and love and rest,
Because I know for me my work is best."

(Applause.)

REPORT OF SUPERINTENDENT.

GEO. A. PUTNAM, B.S.A.

The past year has seen larger and better things for Ontario Women's Institutes and the work which you are doing is attracting increased attention not only throughout Ontario, but the other Provinces of the Dominion. In fact, you are looked upon as leaders in this very important and comparatively new work among home makers. You are commanding the respectful attention of public men and women of prominence as never before. Your influence is already felt, but who can measure the benefit to future generations of the work which you are doing.

Judging from the earnestness which has characterized similar conventions in the past, and the businesslike way in which you have responded to the call this year again, we conclude that you wish to avoid verbosity or repetition in the addresses. We have an excellent programme before us and I would like to enlarge upon it, but a passing reference must suffice.

If our organization has done nothing else, it has taken the women beyond, but not above, those things which concern the every-day routine of the home. Due prominence has always been given to those duties and responsibilities which come to every woman who is responsible for the well-being of a household. At the same time the lives of the members have been broadened and their attention directed to education, life problems, community interests, home and public hygiene, water supply, civic improvement, care and education of the defective, etc., etc. Your field of usefulness and opportunity is unlimited.

Women are drawn naturally to those of their own religious belief or social circle, but we find in the Institute women of all denominations and social standing binding themselves together and co-operating in promoting among themselves and throughout the Province those principles and institutions which their higher intelligence, mature judgment and experience have proven worthy of womanhood's best efforts. Those who have most in common are naturally drawn together in the formation of a local society, but an organization which lives up to its opportunities and privileges appeals to all high-minded women in the locality sooner or later, and if we are inspired by the best motives we will reach down and help the most lowly and needy of the community. If there are women in your locality who have not yet been attracted by or enlisted in the work of the Institute, ask yourself why. Is it that you have not lived up to your opportunities, that you have not yet done your best to bring your society to the favorable notice of these women? Are you content to allow the women of your district to judge of the high ideals of Ontario Women's Institutes by what your society has done. If not, then ask yourselves what there is to be done and what you can do to command not only their attention, but their co-operation.

You have not only further perfected yourselves as institute workers during recent years in administering to the material wants of the race, but you have used your influence and done your part to satisfy the desire for better intellectual and social advantages and to raise the standard of morals throughout rural Ontario. The highest ideals of womanhood are the same wherever true womanliness exists, and as you stand true to these ideals for yourself and for the nation, you will find yourselves drawn closer together in an ever strengthening bond of common endeavor.

The woman who has been active in Ontario Women's Institutes, no matter where she goes, carries that something which impels her to tell her new associates of the good to be derived and given through the Women's Institutes. In British Columbia, Saskatchewan, Manitoba, Alberta, New Brunswick, as well as from across the line, word comes telling of the formation of Institutes or the deep interest which the women show in the ideals for which the Institute stands.

We are not and have not been concerned that our organization shall secure publicity by doing that which is sensational and done for the purpose of attracting public attention. We do not aim to do that which will give the society notoriety, but our desire is to make the life of the lonely and isolated brighter, to spread the gospel of right living physically and morally, which we are pleased to know exists so largely among Canadians, and to attract and secure the co-operation of the increasing number of those in our towns and villages who are inclined to magnify society life. The Institute deals with the vital things of life and leaves formalities to the care of others. Our desire should be to deal with the every-day needs of our people in such a way that the life of each will be made more perfect.

While the greatest source of satisfaction is to be found in the enthusiasm of the members, the excellence of the work done, and the bright prospects for the future, we are also gratified at the growth in numbers during the past year. We now have 650 branches with a membership of nineteen thousand and ninety-one for the past year, an increase of three thousand over 1909-10. The total attendance at Women's Institute meetings for the year was over one hundred and fifty thousand.

It would, no doubt, be profitable to further enlarge upon the underlying principles, accomplishments, and possibilities of our society and set up ideals. I assume, however, that you as delegates are looking for definite information and suggestions as to how the aims and objects of the organization may best be attained. I shall, therefore, confine my further remarks to observations based upon the work of the past year and give suggestions which we trust many of you will put into practice in your own organization.

It has been particularly gratifying to note the readiness with which the members generally throughout the Province have responded to the call of their officers in making the regular monthly programmes of interest and value, and no society can become entirely successful without this co-operation. The Institutes have not only continued to devote a fair proportion of their time and effort to the discussion and study of household topics, but they have more than ever reached out and taken an interest in community problems—civic improvement, the perfecting of self-improvement facilities, such as libraries, rest-rooms, etc. The moral atmosphere of many communities has been cleared. Although you have always accepted nobly the responsibilities which have been yours, a noticeable and most gratifying feature of the work during the past year is the enthusiasm shown by not only the new organizations but those which have been established for a number of years.

There is a growing tendency on the part of the Women's Institutes to co-operate with the Farmers' organizations to the mutual benefit of all concerned. An increasing number of Agricultural Societies are seeking the co-operation of the Women's Institutes in revising their prize-lists and introducing features in their Fall Fairs which are of special interest and value to the women. It is not necessary that the Institutes should lend *financial* assistance to the Fairs in order that this co-operation may exist and continue. In fact the Fairs are much more liberally supported financially than the Institutes, and an organization should consider well before giving of its funds direct to a Fair. If, however, they wish to appropriate a portion of their money to the local fair, they should see that it is for educational purposes or some competitive feature among those who are or are likely to become active in Women's Institute work.

An increasing number of Institutes appreciate the necessity of embracing a variety of topics in their yearly programmes. While it is well to avoid monotony in the work of the Institute, there is a danger of spreading our efforts over too wide a field and finding ourselves at the end of the year with no substantial work accomplished. While we should seek for some variety, we should endeavor to choose subjects which are correlated. Such a choice of subjects is an inducement to the members to choose their reading along more definite lines.

Definite plans for the year, in so far as programmes are concerned, are in the best interests of the work, and an ever growing proportion of our branches are publishing printed programmes, many of these containing full outlines of the proceedings for each meeting, while others give announcements of the main topics for each meeting and leave space for the filling in of such topics as may appeal to the members throughout the year. People of marked ability may come to your locality during the year and it is well not to have your programme so full that you will not be able to hear from them for a year or more after their arrival. One of the important duties of those in attendance at the district annual meeting is to formulate plans, so far as possible, and give advice for the preparation of the branch programmes. A few localities have decided upon one or more topics to be taken up at each meeting by all branches. Such assistance as this will be appreciated by the newer branches and those which have not been most prosperous.

County Conventions hold a prominent place in Institute work, and where a general co-operation of the branches can be secured much benefit is derived therefrom. We highly commend this feature or work.

The permanency of the work is reflected in the increasing number of branches which are providing permanent quarters. In many branches they have already secured a permanent hall which is used as a library, reading room and meeting place, while in a number of districts the branches have co-operated in establishing a rest-room in the chief town of the district, which is used as a common meeting place and rest room, not only by the women from the surrounding country, but also the women and girls of the town. At Whitby, Lindsay and Hespeler, as well as at a number of other places, we find such provision, and at the latter place the girls and women of the town congregate every Monday evening for sociability and take advantage of the occasion to give each other suggestions and assistance in fancy work, sewing, etc. Wards and rooms in local hospitals have been furnished and are maintained by some of the Institutes. Contributions to various lines of philanthropic work are becoming more general. Such contributions and efforts require some special means of raising money, and the resourcefulness of the Institutes in this respect is indicative of the aggressiveness of Institute workers.

Increased and more general attention is being devoted to civic improvement on the part of our Institute officers and members. Towns and villages have been cleaned up, trees planted, walks improved, and, in some cases, renewed, streets lighted, and encouragement given to the private individual to keep his own place as well as the street in front of his place in a tidy, attractive manner.

The suggestion made last year that the Institute inquire into conditions surrounding the local schools and do what they could to improve the same, has been generally acted upon and many scholars and teachers have benefited materially through the activity of the Institutes in this respect. Not only has the sanitation, equipment and decoration of the school been looked to, but much has been done to beautify and make more attractive the surroundings of the school yard and schoolhouse. A few Institutes have distributed seeds and plants among school children upon the understanding that they care for the same according to directions furnished. In the majority of such cases arrangements are made for an exhibition where the flowers and vegetables produced are entered for competition. This is a most beneficial feature of work.

There is an increasing tendency on the part of the Institutes to ask members who are known to be proficient along certain lines to give *demonstrations* in those branches of house-work or home-keeping in which they excel.

It is impossible to give anything like a complete list of the subjects which are prominent in the work of the past year. While we conclude from time to time that every conceivable line of work has been touched upon by the Institute, we continue to receive reports containing new features. Among the topics which have been prominent in the work of the past year we may mention—The installation of drinking fountains, addresses by doctors and dentists bearing upon their professions, banking, gardening, manners of our children, my bird neighbors, study of Hand Book, spelling match, points in law which women should understand; my grandmother, my mother and myself; current events; source, preparation and purity of imported foods.

There has been an increased tendency during the past season to enlist the co-operation and assistance of the gentlemen in making the work of the Women's Institute more effective. Many professional men such as doctors, dentists, lawyers, bankers, as well as business men, merchants, butchers, etc., have given addresses and demonstrations before our local Women's Institutes.

You will remember that at our last Convention an advisory committee was appointed for the purpose of conferring with the Department as to ways and means whereby some systematic form of instruction could be given to a group of Institutes. The basis upon which assistance was at first offered made the instruction rather more costly than was acceptable to the members of the Institutes. We then made the offer more liberal and are pleased to state that we now have a group of six Institutes in the Haldimand and Norfolk district which are receiving a course of lectures from a well qualified and specially trained teacher, who has already given you some particulars regarding the work in hand. The words of appreciation from those taking the instruction should be sufficient to induce the Legislature to appropriate funds to encourage the work in its initial stages.

While the assistance by way of literature and lectures given to the Institute members has not been thorough, especially from the standpoint of the professional teacher, our efforts have made it possible for the industrious and attentive to get much valuable information on Food Values, Uses of Fruits, Vegetables and Money, Milk—Care, uses and food value, Flour and Bread Making, Care of Teeth, Bacterial Life, Prevention and Treatment of Tuberculosis, Care and Feeding of Infants, Poultry Raising, Gardening, etc.

It will be our aim to give what assistance we can in the current year regarding Household Conveniences and Labor Saving Devices, House-planning and Remodelling, Water Supply and Disposal of Waste for town and country homes, Life Problems—in their deepest and broadest sense. St. John's Ambulance Association. Help for the Boys.

While we have adopted the motto "For Home and Country" and do not, so far as I can learn, wish to make any change, it will be of interest to the delegates to hear some of the mottoes and quotations which have appeared on programmes received from Institutes during the past year.

"If you know a good thing, pass it on."

"Nor need we power or splendor, wide hall nor lordly dome,
The good, the true, the tender, those form the wealth of home."

"To-day is the time to be happy."
"Patience and application will carry you through."
"In love of home, the love of country has its rise."
"Women, after all, are the great props and comforts of existence."
"We should all try to discharge our duty."
"For nothing lovelier can be found in women than to study household good."

"Knowledge is power."

"Loyalty, sociability, progress."

"Our Aim, to educate and brighten."

"We all meet on one common level, our neighbors as ourselves, with one object in view—to raise the standard of health and morals of our people."

"Frugality makes an easy chair for old age."

"We pass through this world but once, and any good that we can do will be a willing service."

"If you have a little kindness, pass it on."

"The road to happiness lies over small stepping stones."

"The life of each day would be pleasanter if we would permit ourselves to enjoy the work in hand."

It is indeed encouraging and most gratifying to receive words of approval from Institute officers and members regarding services of delegates who have been sent throughout the Province from time to time. While we have endeavored to furnish the Institutes with speakers qualified along a variety of lines, we have always aimed to take up work which is of special interest and value to the mother in the home.

You have a most valuable co-worker, I should say leader, in Miss Watson of Guelph. She is untiring in her efforts to assist you and her capabilities are apparently unlimited. The Department has a high appreciation of the work which she is doing and the increasing requests made of her by the Institutes throughout the whole Province is the strongest tribute to her work.

Our official organ continues to support the Institute work and we believe you are the best friend that Journal has. We are indebted to the local press throughout the whole Province, and especially the Agricultural Journals, which have so nobly supported you in your efforts.

I cannot close without expressing hearty appreciation on the part of the Department for the continued co-operation of the large band of Institute officers who have assisted us in making the work such a success up to the present. We have every reason to believe that this assistance will continue. We are always ready for suggestions. If you have anything which you think will be of benefit to Institutes in other localities, do not fail to write the Department regarding the same. While we learn through the monthly reports much which is of interest and value from a Departmental standpoint, we are confident that many organizations are carrying on aggressive work along lines which might be made generally helpful, but which have not been reported to the Department.

This meeting has a greater significance than the summing up of our accomplishments during the past year or a review of lost opportunities for doing good; it is an occasion for putting new life into our work with its possibilities and responsibilities of the individual women to accomplish some work yet unattempted or undone in her home, in her town, in her country, in her Province, in her nation, or in her Empire. Let us have a passion for carrying from one end of society to the other the best knowledge, the best ideas of our time.

DR. HELEN MACMURCHY of Toronto gave an illustrated address on Social Service, showing some fifty lantern views. She referred first to the great awakening in these days of the twentieth century, making us think whether we will or no, of the larger world, and the great opportunities of modern life, illustrating this by references to the vast emigration Canada is receiving, thirty-fold as great as the United States received when its population was 7,000,000. The pictures, each of which told its own story, were housing problems, milk problems, children's problems, and the efforts of the school, the church, the city and the individual, to meet these.

EVENING SESSION.

WEDNESDAY, NOVEMBER 15TH, 1911.

There was a very large attendance at the evening session held at Convocation Hall. Mrs. E. G. Graham of Brampton occupied the chair in a very acceptable manner, and in her opening remarks said:

I was a proud woman the day a gentleman in our County said to me, "I consider the most potent force for good in Ontario is the Women's Institutes." (Applause.) I do not wonder that you feel complimented, I assure you that I did. Some years ago, when the Institute was in its infancy, two farmers were discussing it and one said to the other: "What is the good of these Women's Institutes anyhow?" and the other said: "Well, I do not know particularly, but I do know that my wife meets the finest women in the County." We have all fine women in our Institutes and we want the others to come and help us and we want to help them.

We must be enthusiastic in our Institutes in order to make them a success. We must apply business principles and business activity. I overheard two men discussing a business failure of a mutual friend, and one thought he had failed in business because he had inherited the business. There seemed to be no reason why he should have failed; and one said to the other: "I believe John failed because he did not put himself into his business." Now, we know that we must put ourselves into our Institutes in order to make them a success. I wonder if we realize to-day that Ontario women are helping to make Conadian history. History is full of the things that people do, there is no mention of the things that people do not do. We want to do whatever we can to help on the good work that the Institutes are doing to-day.

I must say one real nice word for the husbands of the women who are here as delegates—they must be nice men or they would not allow their wives to come here to this Convention. They will love you all the better when you go back home and you will be all the better for being able to tell the children and your friends of the splendid Convention we had this year in Toronto, and you must try to have more of your friends come next year. Last year in one of the morning papers there was a little wish written and I thought it so beautiful that I will repeat it to you this evening:

"To wish may be to attain, and for what do I wish: that we Canadian women may have more courage to learn to drive away care; more courage to meet the many temptations, to kill the wrong desire; courage to take a generous view of the words and acts of others—we do not know the motive; courage to sacrifice some part of our time and our means for the less fortunate; courage never to be bitter no matter how many and deep the disappointments." And I wish that love, great love, may crown this courage with happiness.

I will now call on Mrs. W. Dawson of Park Hill to tell us what her Institute is doing.

Mrs. W. Dawson, Parkhill.

Madam Chairman, Ladies and Gentlemen: Special feature work in any Institute should be a gradual growth, arising out of the needs of the community in which your Institute is situated, and no special feature should be adopted simply because some other Institute has made it a success; so, while I shall tell you about one or two special features with which we have had some success, it is not that you may go and do likewise, but merely that it may suggest to some one an idea of looking about her in her own community to see what there is to do that no one is doing and that the Women's Institute can do very nicely. It is a trite saying: "Blessed is the man who has found his job," and it would be equally trite to say: "Blessed is the Institute which has found its job" if we are going to continue as a progressive association, and very often a special feature will supply that need.

The first special feature which we adopted in Parkhill was local improvement. We appointed a committee in the fall, and during the winter held a most delightful series of meetings and planned out our work for the following year. There were six vacant lots facing on our front street and adjoining our high school ground. For a number of years the school board had been trying to buy these lots, but the price was $800, which they considered exorbitant. Our Committee visited each owner of the lots separately and asked him the lowest possible price he would take for his lot and asked him to sign a paper giving us an option, and the combined price of the lots was found to be $160. We offered them to the school board, and they were very glad to get them. Then the Town Council, which was somewhat antagonistic to this movement, because they did not consider it proper work for women, discovered that the school board had an overdraft of $600, which they insisted on being paid at once, and the school board paid it. Then they had not any money to buy the lots. Sooner or later you must come to that stage, if you adopt special feature work. Some women would say, "That is the last thing I will every try to do for this town, they do not appreciate it." And "You will lose the woman whose husband is afraid it will injure his business." For a week we were in that state of despondency. Then some of our members canvassed the town and in three days they raised the $160, and three days before the option expired the property was purchased by the Women's Institute.

These lots were in terrible condition. They had been vacant for some time and there had been stores on some of them which had burned, leaving nothing but the holes where the cellars had been. The ground was covered with an accumulation of old tins, etc. The Committee had to level these lots up, and we asked every farmer we could get hold of to come in and give us a day with his team. We got up a play and other entertainments and raised money, and then we had large trees transplanted on the lots, and these trees were kept alive by watering them every night. The second summer the grass had grown to luxuriant growth and the trees also. While the men worked the lawnmower, the women worked with spuds on the weeds. Then we had the opening on Coronation Day, and we called this little park "Coronation Park." We hired a man to cut the grass for the rest of the season and all through the dry spell we had this summer we had to fight for the life of our flowers and trees by carrying every night forty or fifty pails of water, sometimes carrying them a block. That work was mostly done by two women. You cannot get all your members into special feature work and you must be thankful if you have one or two who will take hold and give you help. We had band concerts in this little park—the bandstand was moved and the citizens have had a very pleasant time.

Another special feature, from which troubles arose, was our Vacuum Cleaner Club. We had a vacuum cleaner which we rented out at a dollar a day. This year we sold it and we got up a club in the Institute and each woman that joined that club paid one dollar, and then has the use of the vacuum cleaner as long as it lasts, once a month. If it lasts a year, she gets it twelve times at a cost of eight and a half cents a day. We appointed a committee to get up the club, and they came to the President and said: "Will it matter very much if a woman who is not a member of the Institute gets the use of the vacuum cleaner?" The President was a little tired, which no president should ever be, and she said, "Well, I guess not," and thought no more about it. The President was delighted when she asked how many members they had in the club and they said twenty-two. She said, "Is that all the members who would take advantage?" They said they supposed more would take advantage, but they had their club, and they could not work any more. She asked to see the list of names; her own name was on as President, her Secretary's name was on, and two members of the Institute were on, and the other names were women who had never been interested in the Institute in their lives, and they also told people that this had nothing to do with the Institute. You will find women on every committee who cannot realize that the committee is responsible to the body that appointed them, and it took a good deal of persuasion to get these women to understand that they were appointed by the Institute, and that they were doing this work for the Women's Institute. The result was that we had to buy three vacuum cleaners and each is sent out Monday morning to one home and then passed on to another, going back to the committee woman's house every Saturday night. The mayor of the town is at the head of that Vacuum Cleaner Club, and, if the Women's Institute did nothing else but institute that club, it has justified its existence. The mayor is one of the men in the town who, once a week, has the privilege of working the pump end of that vacuum cleaner.

You should always keep in mind, first, to benefit your community; second, to give the women an idea of their duty as citizens and to cultivate in your Institute that spirit which men mean when they say, "He is one of Nature's gentlemen." To be one of Nature's gentlewomen should be the aim of every Institute worker, and if you cultivate that feeling, you lose the woman who states that you are encroaching on her aristocratic tendencies, but you must be satisfied to see a woman fall out here and there. Try to take her along, if you can, and, if not, go along without her; if she is worthy, she will run and catch up to you. (Applause.)

THE CHAIRMAN.—We have some Toronto friends here with us, and I wonder if they know what the Women's Institutes are doing throughout Ontario? They are establishing libraries, beautifying the town and country places, establishing rest rooms and planting trees and all that sort of thing. I felt this afternoon while the Superintendent was reading his report, that I could say once again, "The most potent force for good throughout Ontario is the Women's Institute."

I will now ask Mrs. Dorrington, of Alton, to tell what their Institute is doing. I am the mother of the Peel County Institutes, and this is one of them.

MRS. W. DORRINGTON, Alton.—Dear Mother, Ladies and Gentlemen: We are very proud of our mother. We have been proud of our mothers from the time our Institute was started, and I am very thankful to say that I have been a member ever since the Institute in our community was organized ten or eleven years ago. We were one of the first in the District, and I hope I shall always be a member as long as the Women's Institutes are in existence.

I am here to tell you to-night what we have done in our little burg. In the first place you must understand that ours is a manufacturing village. We have two woollen mills which employ about fifty hands each, and of these one hundred people, most are boys and girls—mostly girls. You can understand that boys and girls working from seven or eight o'clock in the morning until six at night need some recreation; and as the old Hindoo philosopher said, "a healthy body needs recreation," so it is that a boy or girl who has healthy exercise will not go down the track. We were interested in getting something for them to do after their working hours, and we took up the idea of getting them an open-air rink. At the time we thought of it we had only $20 in the treasury. We had an ice cream and cake social, and offered prizes for the six best cakes, three to be made by girls from twelve to fourteen, and three by girls from fourteen up. None of our members competed, because we were all supposed to be good cooks. These prize cakes were served with the ice cream.

We have a Scout organization in the town, and they gave us a small donation. Our girls' club gave us a donation. We went among the townspeople, and that is where our good husbands came in, and we got quite a nice subscription from them. When we had a little money at our back, we bought ten thousand feet of lumber for the building of a rink. (We had three thousand feet left over, and we sold it to one of our member's husband, who keeps a planing mill.) We bought the land for $50, and we paid $65 for levelling, and the lumber cost $129. Some of the work was given us. When we got the rink in shape we rented it for a small sum, and made a little in that way. We gave the boys and girls good skating.

When spring arrived, we came to the conclusion it was an elephant on our hands, because we had levelling to do and a pump to put in, so we sold it for $400. We have all this money in our treasury, and do you know what the townsmen say? "If you want to put a business transaction through and make money on your deal, hand it over to the Women's Institute."

After we sold our rink, we wondered what we were going to do with the money. We said we would all take a trip to Europe—forty-three members on $400. (Laughter.) We decided we would buy a park. We have a park in our town, but it is up on the top of the hill and a number of the people did not like climbing so high. We bought a plot near the school house, so that children could have it as a play ground. Our town fathers tried to buy this lot two years ago, but they could not. The Women's Institute went after the gentleman who owned this four and a half acres, and we bought it and we planted maple trees all around it at intervals, and we got the whole thing for $427; so you see we can get snaps around there. Then we found we were a little shy of funds, and we put on a Scotch concert which was very successful. We made a clear profit of $45. We had a good Scotch dinner, too. We all worked with a will; there are no drones in our Institute.

Miss M. U. Watson, Macdonald Institute, Guelph, Ont.

Madam Chairman, Ladies and Gentlemen,—There are three or four questions that I am asked to answer. First: "Is it worth while for me to go to Macdonald Institute just for my own benefit in private housekeeping, taking the social side into consideration?" I shall answer that in two sections. As to the first part, you may ask the various young men who have married Macdonald Institute girls. You might also make private inquiries of the girls whom you know to be engaged before they come to Macdonald Institute. You would be rather surprised to know how many there are. I got a letter the other day from somebody enquiring about another student of Macdonald Institute, saying, "I want to take the same course that she did. I believe she took the 'Diamond Ring Course.'" (Laughter.) It is evidently worth while for the girls to go to Macdonald Institute with the object of keeping house afterwards.

Another answer is that we get many sisters of old students. We know of parents who say, "I would send every daughter I had, if I had seven."

Taking the social side—here I speak feelingly, because one of the great trials of my position is to ensure enough time for the students to do sufficient studying. They do have such a good time among themselves. I cannot go into the different ways, but speaking seriously, many parents say to us, "I want my girl to go to Macdonald Institute to live with other girls, to learn to give and take among other girls. I am sure it will be the best thing that can happen to her. I will not let her come if she must board down town."

The next question should be connected with that one. It is: "What is the expense of sending a young woman to the Macdonald Institute?" It depends on whether the young woman is a farmer's daughter, or comes from the city or from a town in Ontario, or a city or town from somewhere outside Ontario. It costs the farmer's daughter and village girl $30.00 a year less than anyone else. It costs the farmer's daughter about $60.00 for a term of three months; that is, about $20.00 a month will cover her expenses beyond her pocket money, and no man can make an estimate of a girl's pocket money. It depends partly on the liberality of the people at home and chiefly upon the training she got at home before she came to the Macdonald Institute. I must say, however, that we have a regulation which gives the preference to the farmer's daughter to within sixty days of the opening of the term, and that within the last three terms in connection with the non-professional classes, farmers' daughters have practically crowded out the other girls, and, if the people who are not farmers' daughters want to get in, even for a little while, they had better impress upon the present Government, or any Government in power, that it is high time they put up more residence accommodation for the girls. I am not going to say anything about the boys. It is high time there was more residence accommodation provided, because we have refused as many this last year as we have accepted. If you want your daughters to get in next year, you had better apply before very long.

"Kindly tell me in what way we can educate our farmer husbands and hired hands to help dispose of the flies, as we have so many animals to deal with, it is a hard problem?" She has answered her own question in that word "educate"; educate them. See that they know what the history of the house fly is, and that is the only way in which you can combat the house fly. There is hope that you may get rid of them.

THE CHAIRMAN: I have very much pleasure in introducing to you the Honorable Adam Beck, who will speak on "Electricity on the Farm and in the Home." I am very glad to meet the honorable gentleman on this platform. If we met on any other platform there might be trouble, but I am glad to be able to say that in the Women's Institute we have no politics.

ELECTRICITY ON THE FARM AND IN THE HOME.

HON. ADAM BECK.

Madam Chairman, Ladies and Gentlemen,—Let me say that I have come here to-night totally unarmed and unequipped in any sense to deal with the subject from your standpoint, because I have had no time or opportunity to even think of the subject, much less to make any preparation.

Allow me to congratulate you upon the great success of this gathering. It must be encouraging to the leaders of your Society to have so many here to-night from all over the Province of Ontario discussing matters of such vital consequence to the homes of the people of the Province. It is a noble work, and if I were not a public man, I should like to be one of the women who are undertaking this very noble work. It is very consequential in the community in which you reside.

I wish to thank you for several invitations that the Women's Institutes have given me to address them on this subject, in the different parts of the Province. My regret has been that I have not been able to because of the pressing duties that I owe to the municipalities who have launched in this great work. It demands practically all the time, day and night, that is at my disposal.

I am just going to think of matters as I go on, and my address will be a rambling one and somewhat disjointed, and yet I hope to tell you something of what has been accomplished by the municipalities, with the co-operation of the Government of the Province of Ontario, in making available one of the great national assets of this Province for the benefit of the people. Electricity is going to be of great consequence to the homes of the people of the Province of Ontario. Electricity, whether cheap or expensive, is a great factor in making homes more comfortable and the housewife's work less burdensome and more attractive; especially will it be a great factor in the more sparsely settled parts of the Province, whether on the farm, the rural community, or the small village.

This great scheme was conceived in 1902, and took its inception when the municipalities realized, because of the great advance in electric science and art, that it was possible to transmit this wonderful energy to a great distance economically, making it available not only to the community adjacent to the great water powers of the Province, but bringing it to the remotest home in the Province, if a sufficient quantity can be used in that distant part. The municipalities appealed to the Legislature to give an enactment to enable them to develop, generate and transmit the power as a public undertaking. In 1902 I happened to be mayor of the City of London, and because of my office, I became interested and was a delegate to that Convention, and ultimately a member of the Commission that was appointed under the Act creating a Commission to enquire and report upon the possibility of transmitting power as a public undertaking. We secured the legislation that enabled us to deal with the question for the municipalities.

After working a year and a half and spending $15,000 of the moneys of the six or eight municipalities who contributed, we came to the conclusion that the scheme, as outlined in that Act, was not a feasible one. As you know, it was termed "Gold Brick Legislation," and a "Gold Brick Proposition." I never felt that it was such. I knew that the information that had been submitted to the people was of great value, and we ultimately found it opened the eyes of the people to what a valuable asset the water powers were to the Province. We found that power could be generated and sold at Niagara Falls, with a fair profit to the company undertaking it, at $9.00 per horse power. Comparing that with coal imported from a foreign country and subject to the laws of that country, and subject to strikes and other conditions which made it a very risky and expensive commodity to the people of this Province, electricity, generated at Niagara Falls, is about one-fifth of the cost that it can be generated for from coal. That means much to the country in transportation, much in industrial development, and now we realize what it will mean to the village and to the farmer in carrying on the operations of the farm and the work of the household at home.

This work has been carried on without regard to politics and without regard to the consequence it would bring to politics, either from the standpoint of the municipality or the Government, and I am safe in saying that it is entirely free from political standards.

It so happened that there was a change of Government, and I was a member of the new Government, and the Premier of the Province placed upon my shoulders the responsibility of dealing with this great question. I had had the experience of several years' work, and, therefore, he thought I might be fitted to carry it on to a greater extent.

The Government pledged itself and undertook to finance the whole thing. That is to say, the treasury of the Province of Ontario would be behind any municipalities who would undertake the capital cost or the liability indirectly to develop, transmit and generate electricity.

I am glad to be able to say to you to-night, that, although we have been five or six years working on this great undertaking in conjunction with the municipalities, we have not, up to the present time, had a single complaint from a municipality or a member of a municipal council suggesting any change in the project or suggesting any different mode or method of dealing with it, and, therefore, we must come to the conclusion that so far as the principle laid down at that time is concerned, the project has been eminently successful. Understand me, that the interest of the Province of Ontario lies simply in the fact that they have advanced the moneys, amounting to about $4,000,000 at the present time. The municipalities enter into a contract with the Government for a supply of power. It cannot be said that this applies to any one part of the Province. It applies to the whole of the Province, whether north, south, east or west. The only procedure necessary is that the municipality must make application for the amount of power that they think they can use, and it is then the duty of the Commission to secure an estimate telling them the cost of it, considering the quantity they are going to use. It is then the municipality's responsibility to say whether it is of sufficient inducement, as to price, for them to take it, rather than generate it for themselves.

The interest of the Province is merely that they advance the money and receive four per cent. interest and a sinking fund that retires it at the end of thirty years, when the project belongs to the municipality and not to the Province. The Commission's duty is, as trustees, to carry on the project, to build the line, to make contracts and to supply the power for the municipalities. There is no revenue to the Province of Ontario in this whole project. It is a very desirable undertaking for the people of the Province.

In our tour of the continent of Europe, we found that the Government exacted a considerable rental for the use of the water powers in the different countries, and they exacted a percentage on the sale of the electricity of from six to nine per cent. That is not the case in the Province of Ontario, and it is public spirit on the part of the Province to undertake it without any revenue. We are fortunate in not requiring a revenue for military purposes as they do in Europe. They tax everything over there, and electricity is taxed, as other things are, for military purposes.

The scheme was criticized sufficiently to make any public man doubtful as to its success, and it was quite reasonable that we should not risk four million dollars until we knew and had reason to believe it was going to be a great success and a great help to the Province. That is the reason we have not launched more strongly in other directions than we have up to the present time. Wherever an appeal came from the people on the basis outlined by the Government of this Province, we made a contract with them. The first municipality to ask was the City of Ottawa, and the next year Port Arthur, and then the municipalities in the Niagara District, and then in Midland and Penetanguishene. The Eastern part of the Province has been rather handicapped because we could not secure a supply of power, but I think I am safe in saying that that will be overcome in the near future, and I believe in the course of a fortnight we will know definitely whether the Government is in a position to supply power in the east, whether developed by the companies who have rights there or whether the Hydro-Electric Commission will undertake the development of power.

It is quite possible that we will have a supply of power for the Counties of Huron, Bruce and Grey from water powers existing in these counties. You know the criticism that was dealt out to us, because they said we were interfering with vested rights and entering into competition with concerns and companies that had made huge investments in some of the larger cities in the Province of Ontario. We take exception to that. We have not gone into competition, but, on the contrary, we have become a customer of one of the large corporations that was created by the Province of Ontario at Niagara Falls. We have become a consumer of electricity.

Then came the cry that we were going into competition in the Cities of Toronto, Hamilton and London. I think competition in these municipalities is a good thing. We fear no companies, why should they fear us? I believe there is room for both. I contend that, when electricity is as cheap as it is in the City of London, that there is room for both, and I believe that, with electricity as cheap as it is in Toronto to-day, there will be such a consumption in a very few years, that the companies will be able to sell all they have, and a great part of what Toronto has for sale. It is the cheapness of the article that creates the demand. This competition is healthy for the City of Toronto. It will make the City of Toronto do business on a business basis. It will put life into the City of Toronto and into her municipal commission. Therefore, we need not fear the consequences to the City of Toronto. There has been competition during the last three or four years in the City of Ottawa, and it has produced good results.

Four-fifths of the coal fields of the United States are owned and controlled by a combine or trust, and they impose any price they see fit, and the quality that they make is their standard. We are receiving coal to-day that does not compare in quality with what we got ten or fifteen years ago, and the price is continually going up, never down. We also pay a duty to the Dominion Government on this coal, and that is a great handicap to the industries that have to compete with the industries of the United States in the markets of the world. And the United States might say they will place an export duty on that coal, and then the people of this Province will be subject to that duty. That is one of the reasons why this great project was conceived.

The undertaking has involved the expenditure of three and a half million dollars. The cost of the power has been entirely on the capital invested. We knew we had made a contract to get power at $9.00, and that was cheaper than power had ever been sold in the world, as between a company and a corporation, or a company and a Government. We knew that we had a contract that compared more than favorably with any contract that had ever been made for the sale of electricity. We had laid a corner stone that we knew was sound and solid, and we went on with a great deal of courage and satisfaction, knowing that we would succeed. Then it was a question of operation and the cost of transmission. We were told that the high voltage that we intended to transmit this power upon was not practicable, and had never been undertaken in the world before—transmitting power at 110,000 volts!—and that we should not involve the country in an expenditure of millions of dollars on a plan that had never been proven out in any country in the world. We had faith in our engineers; we had faith in the advice that we got because we were but three ordinary business men; we were not engineers or experts. We engaged the most eminent engineers we could, so far as electricity was concerned. Our transmission system is operating more efficiently than any plant of similar character has ever been operated in the world, and that is a great credit to the engineers who pledged their reputation and who advised us, and it is a credit to the Province of Ontario.

We were told that we would destroy property and that it would not be safe to go along the line—that the farmers would no longer be safe upon the land and that cattle would be liable to be killed.

We built this line, two hundred and eighty odd miles of high voltage, and we built two or three hundred miles of low voltage line. The total length of the double circuit line is 120 miles; the single circuit 60 miles, making 180 miles of low voltage and 283 of high voltage. I am glad to be able to say that we have not had a single accident to any man in constructing or operating, and there has not been any man or animal killed in the two years and a half that we have been constructing and operating this line. This line is better constructed than any we have ever heard of.

The original cost was $3,500,000 odd dollars; the total cost of the line is $3,921,000. The estimated cost of the whole project was $4,040,000. We are $85,000 below the estimate. There is nothing to boast about yet, but it is satisfactory from a public standpoint, and it is a satisfaction to the people to know that they have been able to construct and undertake such a project and come within the estimated expenditure.

Let us look at the results in the lessening of the cost of electricity. In the City of Ottawa they were paying fifteen cents per kilowatt hour for lighting and cooking, ironing and washing, and all the other uses that can be made of electricity in the household. The City of Ottawa cut that price in two and the price is now fixed at seven and one-fifth cents per kilowatt hour. I remember a statement was made by the company that it was ruinous to the City of Ottawa, and yet in the first year's operations they had a surplus of $6,000, the next year a surplus of $18,000, and the third year $23,000, and last year $31,000. And we have reduced prices another thirty per cent., and to-day the City of Ottawa price is in the neighborhood of five and a half cents a kilowatt hour, or one-fifth of the price it was when the company had a monoply, and one-fifth of the price it would be to-day if there had not been competition.

Take the City of Hamilton. We were told we were bringing coals to Newcastle; that they had built up Hamilton by cheap power. We found, notwithstanding that they had the cheapest power development in America at Decew's Falls, that they were paying a higher price for their electricity than we were paying in the City of London, where it was being developed by steam, and that electricity developed by the water powers of this country were of no benefit to the people of Hamilton. The City of Hamilton was paying ten cents for house light, and to-day in the City of London we are paying four and a half cents and bringing the power 165 miles, and that means a saving of $150,000 to the users of the power, and a saving of between $450,000 and $500,000 to the people of the City of Toronto, and to the City of Ottawa a quarter of a million of dollars, and it will mean a saving in Hamilton of a quarter of a million of dollars. It means a saving to the principal cities in the Province of Ontario of two million dollars per annum. The total income of the Province of Ontario is only about $6,000,000 per annum. Capitalized, the whole project will probably take $10,000,000, and the yearly saving will be $2,000,000, paying for itself in five years. (Applause.) The prices charged are sufficient and adequate to meet all the expenses, and there is no such thing as selling power below cost. You all remember it was said the people would be taxed indirectly for this undertaking. They said it would cost $12,000,000 rather than $4,000,000, and to-day we are able to say, after the first year of operation, that the Hydro-Electric Commission will have sufficient income to meet all obligations. And I can speak for the City of London, that, notwithstanding the keenest competition, that city will have a surplus.

What has it done for the people of the City of London? In that city they have a great number of small houses and cottages, and invariably they are connected with the Hydro-Electric public-owned power, because it is as cheap as coal oil and you can light a house in the city of London with lamp renewals and without meter charges, and without any fixed charge, for from thirty-five to seventy-five cents a month. Within a week there will be a statement from the auditors in the City of London verifying what I say, that the city's plant, under the keenest competition, has prices much lower than in any municipality on the continent of Europe, is not equalled on the Continent of Europe, and still we are able to say we have a surplus after meeting all our obligations.

What is the advantage of this project as a public undertaking? Do you suppose for one moment that these corporations—and I am not condemning the corporations, and I do not wish to refer to them as being without rights or reason—do not want to get all they can get for the article they produce, for their rights and business are just the same as yours? When a man goes on the market with his pork or his grain or his chicken, he wants all he can get for them, and so does the vendor of power. We would never have had cheap electricity in our time if it had been controlled and owned by corporations; they would have centralized the uses of power in the immediate vicinity of Niagara Falls and the best manufacturers would have located between Hamilton and Niagara Falls and the small villages to the north, east or west would never have known what electricity from Niagara Falls meant. You could not expect a man to expend millions of dollars to carry electricity to Norwich or Baden or the Village of Port Stanley or Thamesville or even up to Seaforth or Mitchell or the town of Goderich, but it is our duty to go where it is required and it is the policy of the Government to make it available to everybody, so long as the cost is not in excess of what it could be produced for by any other ways or means, and we hope, ulitmately, to make it available to the farmers of the Province of Ontario.

Some of you may be from Woodstock or Tillsonburg or London and you may be able to appreciate the advantages you are deriving at the present time. In going through London East a few weeks ago, I met a man working in front of his place raking leaves. He worked at the car shops and he said to me: "Mr. Beck, I am connected with the Hydro-Electricity. It is a great comfort to me and my wife,—no more coal-oil." I said: "Do you find it expensive?", and he said, "No. The first month it cost me 51c, and the next month 60c, so I bought an iron for my wife, and now we do our ironing and our lighting by electricity, and my bill last month was only 71c." That means much to that man's household, and it is only a beginning of what he is going to do with electricity. He is going to cook with it, and do many other things that he never did before.

It means more to the farmer. We know that to-day the farmer's daughter and son are inclined to leave the farm. There is more life in the city, and there are more comforts, as they imagine, and they are leaving the farm, and our purpose must be, and your purpose is, to make the home life in the village and on the farm more attractive and to help lift the burden from the farmer and the farmer's wife. Farm labor is expensive and scarce, and that makes farm life more burdensome. When labor is scarce and expensive, anything that takes its place is a help to the farmer, and we must encourage the farmer, because agriculture takes the first place in the Province of Ontario, and, therefore, we must be first in our efforts to do all we can to assist the greatest industry we have—agriculture. (Applause.)

With that object in view, I had the pleasure of visiting the Old Land. I went to Germany, the home of my forefathers. I knew nothing about that land or about her people than coming in contact with them in the County of Waterloo, and we need not be ashamed of these German citizens of Waterloo, whether farmers, manufacturers or artisans. He is a fairly good citizen, and he has been a successful citizen, and is content with the land of his adoption, as he never dreamt of, or could have been in the land of his forefathers. I went to Germany because we heard of the great advances electricity had made in Germany and Switzerland and Austria and Italy and Belgium and Norway and Sweden. We have outdone them in the development and transmission of power, and they never could have as cheap electricity as we have, but they are more advanced in the application of it, and one reason for this is that these countries are more densely populated.

The farmers live in villages, and the isolated farm is only where it is a large farm, and there are very few of them. I do not know where this system of living in villages originated. It may have been from the early days when they were compelled to protect themselves from the robbers.

The wages in Europe are only half what you have to pay for farm laborers in Canada to-day, and you are farming larger farms and you have to do it quickly. You have two or three advantages, but you have the disadvantage of living in sparsely settled districts and on farms long distances apart. The Government has undertaken to help municipalities and villages to this extent: They will build all the transmission lines on the cross-roads and highways of the township, and all the township has to do is to step it down and wire it into the farmer's house. That means that the financing of the undertaking, so far as the township is concerned, is very much minimized, and is very small compared with what it would have been if the Government had only delivered power at certain centres and asked the township to undertake to build all these lines to the different farms.

There are two reasons why the Government should do it. The Government can buy supplies in large quantities for all the municipalities and get a low price for the wiring, poles, etc., and they will have a uniform system, and when one community outgrows its system it can be taken to a community just beginning. It is interchangeable and a great advantage to the project as a whole. Supplies will be bought in car-load lots and the Government is in a better position to do the engineering than a small municipality would be. We have the best engineers and we pay them good prices. I am not going to say that we can go into every farm in the Province of Ontario and give you low prices. We must first begin to supply those districts that already have low tension lines crossing through the townships and villages. By connecting up village after village, the farming community between these villages can undoubtedly be supplied with cheap electricity because the main line will be taken care of. The building up of these villages will mean much to the agricultural districts. You all know the most desirable market and the market that is of most benefit and of greatest advantage to the farmer is the home market, where the factories are in operation and where the laboring man consumes all the farmer produces, and where the farmer can go with his pork, cheese, butter, milk and poultry. Cheap electricity is going to stimulate the industries of these different towns and villages, so we help the farmer in two ways, not only by giving him cheap electricity, but by creating a home market in the towns and villages near him.

I would like to tell you about one farm we visited near Dresden. Electricity is operated from the town. The farmers are not so fortunate there as you will be here in having the Government undertake the transmission of the power. They formed themselves into a corporate body and they bought the power from the municipality by meter, they built their own transmission line to the village and distributed it there themselves, and a farmer who was not in the original undertaking had great difficulty in getting power.

There will be no fixed price for power in our scheme. Although the cost of power to a township may be $50 this year, next year it may be $48 and the following year $40, all depending upon the *quantity* used. Our lines are capable of transmitting 85,000 horse-power. At present we only transmit 18,000. It will take the same number of men to operate the line for 18,000 horse-power as for 85,000. Supposing you are running a hotel or boarding-house, capable of accommodating eighty-five boarders and you only have eighteen. You know the cost of maintenance for heat, light, taxes, insurance, etc., management and servants would be the same as if you had eighty-five. You can compare, in your own mind, as to what the cost will be per horse-power when we get a good load. The price that exists to-day will have faded away and you will have very much cheaper power. As new customers come on, the cost is reduced.

The German farmer is a mechanic and a business man. He attended a technical school and he knows how to handle the hammer or file or saw; he knows how to use the trowel. He is a skilled farmer and is up-to-date. The farms are small and you do not see any weeds on them. He takes care of the liquid fertilizers as well as the solids. He gathers every bit of fertilizer he can gather. His hay and straw is consumed on the farm and he has more than one crop a year, and he has a big crop every time, and that is intensive farming. I do not know that he works harder than you do; he undertakes less and does it better, that is the only difference. This farm contained fifty acres and the farmer had twenty-one milking cows and a few pigs and bees. He was well off. His land was worth $300 an acre, he would not sell for that. When I asked him why he would not come to Canada and bring his $15,000 and buy two or three farms, he said, "I am not leaving home. I am making all the money I require. I would sooner farm a little well than much in an inferior way." He had three electric motors in his place, one pumping water in the house. He had a small room in the house all enamelled tile and as clean as possible, very hygienic in every respect, which was used as a dairy for butter-making, cream-separating, and he had all the machinery necessary to make good butter. He had a three horse-power motor in the barn. He threshed his own grain, chopped his own corn and ground it for feed; he cut his wheat and roots and did all kinds of work with that three horse-power motor.

Now, if a farmer with fifty-three acres can have three motors at a cost of nearly double what we can deliver it for, then it must dawn upon us that electricity will be of some value to the farmer of the Province. (Applause.)

There may be representatives from the Counties of Bruce, Grey, and Huron present, and I want to draw your attention to the map of these counties. There is power existing to-day in these three counties that will be cheap power when it is connected with Niagara Power, if the municipalities vote for it at the co election. I will name the municipalities that are included in that district: Goderich, Clinton, Seaforth, Bayfield Hensall, Exeter, Zurich, Brussels, Listowel, Durham, Wiarton, Mount Forest. They can use 7,730 horse-power which is available in these three counties and it will be developed by the Government of the Province of Ontario and financed by it for the benefit of these three counties, if they decide they want it and vote for it at the coming election.

To-night I am going to join the deputation from Lake Field and Peterboro' that is appearing before the Minister of Railways and Canals at Ottawa, asking him to let us have some of the Government owned power on the Trent and the Ontario Government will generate it for the municipalities, so that the eastern district will no longer feel that they have been left uncared for.

(Lantern slides were then exhibited showing electricity in operation on the farms in Germany; milking cows, threshing wheat, churning butter, cutting roots, ploughing, and doing almost everything that can be done by machinery on the farm.)

I thank you all, ladies and gentlemen, for your kind attention. I am afraid I have not been as entertaining as you expected. Where forty or fifty farmers have electricity, there is no reason why there should not be lamps at each gate in the highway. Electricity that is used in the day might just as well be used at night, because you have to pay for it for twenty-four hours and the township has to maintain the lamps which should not cost over a dollar, and the farmer can supply the electricity because it is not costing him anything. He could have a switch in the house and turn it on in the evening and it will light the highway sufficiently to enable the farmers to visit each other. I think that is going to be a great feature of this undertaking. (Applause.)

THE CHAIRMAN: When they start electric motors in our homes we are going to have four conventions a year and your husbands can come with you.

(The audience was then favored with a solo from Miss Homuth of Toronto.)

THE CHAIRMAN: Since going to Belleville, Miss Guest has organized a Women's Institute which is doing most wonderful work in the City of Belleville. We are very pleased to have her with us to-night.

YOUNG WOMEN AND THE TWENTIETH CENTURY.

Miss E. Guest, Belleville.

Madam Chairman, and Fellow Workers in the Institutes of Ontario:

I thought as I sat and listened to-night, first to the reports of the Institutes and then to the speech of the Minister of Power, that this was an epoch-making night in the history of Ontario. It is the first time in history, so far as I know, certainly the first time in Canada, that a Minister of the Crown has seen fit to place his policy before the home-makers of the country. (Applause.) One of the speakers said we were making history, and we are making it fast to-night.

As I looked over this programme, I thought the breadth and scope and fundamental outlook that is shown in the programme is another epoch-making feature. The little motto on the first of it—"For Home and Country"—must have been inspired. They are in the right order: home first and then country. The classes of people that I know best are the mothers and the boys and girls of Ontario. and the people that I honor and revere the most are the rural mothers of Ontario. I have met some of you, I have taught children of others, and, of all the great work that is being done, that of good mothers is the highest.

I shall shorten up my remarks very much because I think you have had quite enough to digest in one evening, but first I am going to talk for a little while about this awful "new woman," for she is here. In the last quarter of the nineteenth century they warned us the new woman was coming, and used to ask when the new woman came what would happen to you and what would happen to the men. Now the Twentieth Century is here and the new young woman of the Twentieth Century is here with it. What is she like and what is she going to do?

I want to go a step back to our grandmothers of fifty years ago. If you had seen the girls in those days, you would have seen them doing the milking—but, as Mr. Beck has told us, that is going to be done another way now. You would have seen some of them carding wool, you would have seen the spinning-wheel going and the loom, and you would have seen that the women were the tailors and dressmakers and bakers and laundresses. The manufacturing went on at home; the woman was the manufacturer and the men produced for her the raw material.

Where is our young girl to-day? All this work has gone into the factory, and what is the girl to do? She must have bread and she likes a little butter on it. She is going to the factory and shop for one thing and she is going to the high school for another. I want you to notice that there were about thirty-two thousand young people in our high schools last year; seventeen thousand girls and fifteen thousand boys. What are these seventeen thousand young girls doing that are coming out of our high schools every day? They are going into offices and into business, into teaching, law, medicine, and nursing. I think that first in order comes teaching. We have some nine thousand public school teachers in Ontario and about seven thousand five hundred are girls and about sixteen hundred young men. They say there is a great scarcity of men teachers and the Government is blamed for it, but I do not know that that is altogether fair. I think there is a deeper reason than that. Teaching in the school has been handed over to the young woman and the reason is that, naturally, woman is a mother, and, just as naturally, man does not like to be bothered with children. There are thousands of men in Ontario who were teachers that are not teachers now. I do not believe it is altogether the salaries. There are about eight hundred teachers in high schools. Three hundred of these are women and they are increasing in number every year.

Education stands for the highest things in this world, and women stand for education. They stand for peace, for purity of life, and for the same moral standard for men and women. Do you think it is going to produce any effect on Ontario to have our boys and girls brought up with these ideals? Do you see any relation between cause and effect?

Young women in medicine and nursing, are they producing any effect? Nursing comes next to teaching as a profession for our Twentieth Century girls, and there again you see the mother heart. You see what appeals to this young woman, and, while she is ministering to others, she is learning. You see the same thing with our young women in medicine; all suffering appeals to them, and the building up of human life. Are they telling us anything that will benefit us? They are learning that sin causes disease; they are learning the terrible effects of immorality, not only to the individual, but to the race, and they are spreading this knowledge among other young women of the Twentieth Century.

Notice the position of these young girls of the Twentieth Century. The great fault with the woman in the home is her timidity. She is afraid to assert herself outside of her home. These young girls are pushed out. They did not go out, it was not their choice; it is simply that the spirit of the time pushed them out into the world. Our grandmothers used to be the doctors of the neighborhood, and it is legitimate that their granddaughters should become professional women. The young woman of to-day is self-supporting, and she has a pretty good opinion of herself. If somebody is willing to pay her a thousand dollars for her services, she thinks, "Well, if I am worth that here, I am worth that some place else." When she goes back into the home she has that estimate of herself, "I am worth a thousand dollars." She is not like a dear old man and woman I know. The old lady said, "I think a young man ought to get married. I have always maintained that a wife was worth her board and clothes to any man," and the old man said, "Yes, that is what I think too." Put that old couple's views before the young woman who has earned a thousand dollars, and what do you think she thinks of it? She will say, "I am worth my board and clothes most decidedly, and more than that; I am worth respect and consideration in the community, the state, and the business world as well; and that is one reason why you young women are here to-night and one reason why the Minister of Power addressed you to-night, because you have that new idea of yourself as a human being.

There are some danger points, of course. One of these is the inequality of pay. There is danger there. In a Toronto boarding-house—and I want the ladies from the country to notice this, especially, because it is from the country our cities are being built up—I had a room that was worth from four to five dollars a week and there was no sitting-room in that house. There was nothing but that bedroom that I could use for visitors, and that is the case throughout this city and that is the case in other cities. Do you see the danger for your girls? Then there is the danger from low wages. I noticed a firm in London the other day advertising for girls, "Good wages, $4.00 to $6.00 a week." You know there is danger ahead for the young girl, on that wage. What are we country women going to do about this? Have we no responsibility about these girls of ours? Sometimes I tremble when I see those little sixteen-year-old girls going out from our high schools and taking these positions.

Another danger that men tell us a lot about is that we are being educated away from marriage. It is true girls do not marry as young as their grandmothers did; still, they do marry, most of them, but they do not marry for a living. When a man gets a self-supporting young woman to marry him, he may feel complimented. She is marrying him because she likes him and because she thinks he and she together can live a finer, fuller, and better life than either could alone.

It is said of the young women of the Twentieth Century—but I do not think it is true—that her tastes are so expensive that a man cannot afford to support her. It may be true of the society girl, because the society girl is not the Twentieth Century girl; she has not caught up to the times yet. These young women that have become self-supporting look at the question something like this: "A man has asked me for love, and my life is worth to me a thousand dollars a year. It means I have to give that up, it means that I have to give up a good many things. What am I going to get in exchange for that? What am I giving? I am giving a pure life, I am giving a trained life, I am giving up a profession that I like for housework of which I am not very fond. (Because when you come down to the fine thing, there are very few women really fond of housework.) She says, "I am willing to give up my profession and give up my income," because, with all her education and all her business life, this young girl has the mother's heart. She is a woman above all things. You need have no fear that you will ever train that out. The more you educate her, the bigger, better, grander mother heart she has, and the more experience she gets, the more she gives to her home. But that home must be a true home. She says: "I am giving this to you, what are you giving to me?" She does not want money, not half as much as men think. What she does want is manhood. I heard a young woman saying the other day, "Other things being equal, I would not marry a millionaire," and that was an educated young woman, a young woman quite able to take care of herself. That may be a shock to some people, but it is the attitude of the Twentieth Century young woman. There are a thousand chances to ten that the millionaire is not the highest type of man.

That is her standard—she does not care whether you are rich or not. A friend of mine married a year ago. She was earning $1,200 a year and she married a man who is getting $1,200, and some said it was a most outrageous thing for her to do. "How would they ever live on $1,200 a year; she was used to having $1,200 a year for herself," They did not know that young woman. She knew how to live on $1,200 a year. When you have earned $1,200 a year, you know what it is and you know exactly what can be done with it and, if she was willing to undertake home-making on that, she knew what she was doing and that man was going to have a much better home than if he married somebody who never earned a dollar in her life. But he must give her a clean life, a strong life, a capable life.

I have the confidence of a great many more girls than the average individual, and girls have said to me often and often: "Miss Guest, I am afraid to get married," and their fear is on the moral side. What is the outlook for our country if our best girls feel like that? The outlook is good, although it may not seem so. A gentleman said, "When I was a young fellow, a man married whom he liked, but now he marries whom he can get." These young women, who at the beginning of the Nineteenth Century were just getting a foothold in the commercial and professional world, now have it, and are taking a step upwards and saying, "There has got to be a square deal all round. There must be a square deal in pay, and in conditions of life, and a square deal in marriage, and there must be a square deal for motherhood." What kind of a wife will she make when she gets married? She is a financier for one thing. Most of our girls have to be finanicers on the salaries they get. Another thing, she has more sympathy. She knows what it is to come home tired out from a hard day's work, and she knows what a man feels like when he comes in and sits down and does not want to go out in the evening.

Sometimes I think the tragedy of life is in the man growing and the woman becoming stagnant The woman has not much chance to get outside while the children are small, and when the children get off her hands she feels she is left behind the times. The man gets out all the time. Now, if you give a girl a good chance and teach her the fundamental value of life, she does not do that. She keeps her eye on the future and she is a far more interesting wife than one of the Victorian era, because she knows something of the outside world and of the difficult and hard things of the world. She values herself, she values her husband, and she values the great things of life and keeps on growing. What about her as a mother? Is she going to fail or succeed as a mother? If she fails there, the new woman is a real failure. You will remember how the Old Book says, so beautifully and wisely: "And Eve became the mother of all living." She comes into her home from an independent position. She is there to take her share of the world's work.

At the beginning of this century, our young men went out to South Africa and we made a great ado about it. They fought out there and killed a few men and, when they came home, we had bonfires and gold watches, and gave them 320 acres of land out West. About the same time, one young woman who married went down into the valley of death, and she came back with a little child in her arms and she set to work to build up this little life for this country, for this great waiting Dominion of ours. She started to study for it—for that is what the new woman does. There is where her broad experience and out-door life of the world comes in. She says, "Here is my new profession of motherhood, I will study for this little child and build it up," and do you know that to-night, as we are sitting here, there are hundreds and thousands of mothers doing just this all through Ontario? These mothers are beginning to study their problems, and what has our country done to reward them or help them? Practically nothing. You see they did not kill anybody: She takes that little child and brings it up and she can protect it very well until the first day the little thing starts to school. She probably goes half-way with it and puts it in charge of some older child to take care of and it goes to school. Now it is away from her—there is the risk. How many mothers have shed a tear when the first child started to school, because there is the beginning of the stepping out from the home. Our young mother of the Twentieth Century takes another view of that, too, and she is not going to stay at home and let her child be treated any way at all, but she goes to the school with it. The President from Park Hill, who spoke to you to-night, was my president once, and she did not tell you the greatest work they did up there. The mothers there stepped into the school and investigated conditions and had things done for the children that would not have been done otherwise. I think of an Institute of mothers who organized in the high school especially to study the children. They had been young business women, young professional women, and they are giving the same attention to their children that they paid to their business. Now, when the child goes to the high school, the mother keeps up with it there, and does not lose her grip on it. Moreover, she must make the community fit for that child to live in. How is she going to do it? The first thing she thinks of is the school board. There should be a mother on every school board. Men do not pay much attention to ventilation or cleanliness. If any of you have ever smelt the air in Toronto University, you know what I mean, and the influence of the mother on the school board would be much greater if it was backed up by a vote. (Applause.) We must have more say in the Government for the sake of the child. We do not want to do men's work in the Government. We think that is very well done. But we want to do woman's work in the nation, and through its Government. There will be no violence, and no acid throwing nor anything like that. Nothing on earth affects the Ontario woman like duty. She will go through fire and water to do her duty. She is not thinking of rights at all; there is no clamor about rights; she is thinking about duty. These splendid men of ours are the very finest men, and we have very serious doubts that their like will ever be again, so there is no feeling at all of antagonism, but this great sense of co-operation between men and women. We see it in our Institutes. We see it everywhere.

But she feels about the vote as she does about asking for money, "I need it, and why can't that dear, big stupid man see that I need it for running my home without being asked." We think the men ought to know enough to offer it to us. We do not want to do what the English women do. We like our men too well. We were all brought up under the same educational system and we understand each other from the public school until we go up through the university. Patriotism is a dignified feeling, and I think I must say one thing on behalf of Institute women in answer to the member who said that the intelligent woman did not want a vote. As a graduate of this University, I must answer that and say that the educated women of rural Ontario are the women that *do* want a vote.

Men like to build houses and railways and raise cattle and horses, but just as surely as you get a group of women together they are studying human life, because "Eve was the mother of all living," and, if we go back again to the first chapter of Genesis, we see that "God created man in his own image, in his own image created he him; male and female, created he them, and he bade them multiply and replenish the earth; and *have dominion* over every living thing." Then—can we escape it? It is our duty—we women who love Ontario, we women who love her welfare, we women who are willing to go down to death's door for the sake of the children, who are devoting our life to the children—for the sake of home and country? We want to use every power we can in the service of our mother land. (Applause.)

MORNING SESSION.

Thursday, November 16th, 1911.

MRS. L. A. HAMILTON, of Port Credit, presided at this session. The proceedings were opened by singing the "Opening Ode."

THE CHAIRMAN: I look upon it as a privilege to be appointed to preside on such an important occasion as this meeting of the Women's Institutes in Convention, for, compared to many of the ladies who have addressed you or who are in this audience, I am a mere infant as regards experience in Institute matters. However, as Mrs. White said yesterday, "Ours but to do and try," so I hope Mr. Putnam's choice will be justified.

It has been my experience, on the other hand, to see the Canadian woman, especially the woman in the country districts, at work from the Atlantic to the Pacific, or I should say from the Pacific to the Atlantic, for it was in British Columbia that I had my first taste of downright hard housework. This was in 1887, when the work was great and the laborers few; later, when I married, it was my privilege to be a great deal amongst the women of Manitoba and the North-west, and to see them in their farm homes. Owing to my husband's connection with immigration matters, I was able to see many such scenes and to get insight into the lives of those Canadian women of many races, such as were described yesterday by Dr. MacMurchy. For the last ten years I have lived in Ontario, and have had the experience of our Southern Ontario women workers on fruit farms, and I can most heartily endorse the words of the speakers of yesterday who said that the future of Canada largely depends upon the moral influence of her women; indeed, it is depending and has depended on them. I can speak feelingly of the courageous way in which the women of the West have taken their place in forming the newer parts of our Dominion. In this connection, I cannot wish any better good for our Western sisters, than that the Women's Institutes may spread amongst them in all directions.

I can truly say that since I joined the Institute, I have felt at home in the country as I never did before, and can look into the face of many a woman whom I can call friend as I never did till this hearty organization gave me the opportunity.

Now, I want to touch on a subject that is important to most of us, that of domestic help, and to tell you of a little experience that we have been making in the County of Peel. It may perhaps be useful as a suggestion to you. We have most of us suffered from the scarcity of domestic help and the difficulty in getting it. I had the honor of making some suggestions at our Annual District Meeting at Brampton last April, and the ladies there gave me sanction to make an experiment. I suggested that each County Institute should act as its own domestic agency in order to bring employer and employee together and to cope with the difficulty. I have made a beginning, though it is small, still I consider it an encouraging one.

My suggestion was that each district should, through some duly appointed member or members, act as an agency for that district; that ladies requiring help should apply to such a committee, and that this committee should make application through the recognized Government agents or other accredited organizations, this same committee to act as guarantors for the moral standing of the would-be employer of any young woman; the necessity for this is obvious in view of the many dangers and difficulties besetting unprotected girls. Such a committee could keep a list of those needing help, and through correspondence and by keeping eyes and ears open, in time at least, some of the requirements might be met and employer and employee brought together, for there are young women who prefer country to town, and we must create the channels which shall lead them where they are needed.

That all sounds like theory; let me tell you of the practical working. I have had many letters from ladies in the County of Peel who want domestic help, and have not been successful in meeting many of the demands, but that I have been able to satisfy some, encourages me to go on, so that during this winter I hope to work the scheme up and get fuller information. The scheme is merely tentative at present, but till it has taken more definite shape, we can at least be on the lookout and help each other as members of the Institute.

I have, through friends or through the Women's Welcome Hostel, placed one or two women in apparently just the kind of place they wanted and which wanted them, and have received gratified acknowledgment from the employer. In another case—and this deals with a different branch—I have been able to get berry pickers for a neighbor of mine. These young ladies were most of them town bred, one or two had done no manual work at all, and almost without exception they have just taken temporary work for the winter till the fruit season opens again, when they will return to the farms. Some of them stayed on after the small fruits were picked, did weeding and light hoeing, picking of vegetables, and then passed on to apple picking and packing.

A young lady called on me a few weeks ago who has been for eight years Secretary to a Women's Employment Bureau in England. In order to give her sisters in the Old Country the benefit of her personal experience, she tells me that she thinks of taking up domestic work for the winter, and following that by work on a farm in the spring and summer. I have had innumerable enquiries from the Old Country, and applications for advice from countless young women who wish to come here and who are eminently fitted to do so. If they come, shall we let the towns swallow them all? Could we not organize in connection with our already splendid organization, so that those who are willing to take domestic work in the country districts may know where they are in demand? Further, can we not act as towers of strength and as references to those organizations in the cities, the distributing points for Ontario, could we not act so that the heads of these organizations may have reliable information regarding country applicants for domestic help? This is an important point, and one that I think will appeal to any head of an organization. The responsibility of a young woman employee in a house rests heavily on some minds, especially on those who realize the difficulties surrounding her in a strange land. But with every member of a Branch Institute interested in her welfare, a cordial hand held out and a motherly eye to oversee her, a young woman should be well guarded and encouraged to become an exemplary member of a community.

QUESTION DRAWER.

MR. PUTNAM: Madam Chairman and Ladies,—I have a few questions here, and only a few as compared with all we have received. A number of the questions asked can be answered by reading your Hand Books.

I have pleasure now in naming a committee to confer with the Department regarding the Demonstration Lecture Course Work. Mrs. L. A. Hamilton, Mrs. W. M. Thompson, Mrs. W. W. Farley, Miss Gertrude Gray, a Domestic Science Lecturer who has been on our staff for a number of years, and, as representing the Department, I will name Miss M. U. Watson and myself.

I will also name a committee on Resolutions as follows: Mrs. L. A. Hamilton, Mrs. J. Badgley, Miss M. U. Watson.

I thought this next question was at the bottom of the package. I hesitate to answer it. "Is it against the regulations to discuss votes for women?" That is a hard question. I think I have answered this before by a straight "Yes." I do not know what to say regarding it this morning. It has been indirectly referred to by one or two speakers at this Convention. I think when the women of Ontario are given votes—and I suppose they will have that privilege some day—no doubt they will be the best prepared electors on the Continent (Applause), with the training that they have had in parliamentary usages and in the discussion of questions of interest to them as mothers and as women. Keep on in the work you are doing so well for the home. If you want to discuss women's suffrage, there are lots of opportunities, in and through organizations other than the Women's Institutes. Let us avoid anything of a sectarian, political or controversial nature. (Great applause.)

"How are Institute Branches expected to spend their money?" You will find information regarding that in the Hand Book. I do not like to see a Branch with a large balance on hand, and no definite object in view. I do not like to see them with a large fund on hand for any length of time. If you have money, look for some good way in which you can spend it. Money is of very little use if you have it in the bank. Activity in financial matters as well as in dealing with questions of a public nature is a necessity.

"Give me some advice as to how to get the members to be punctual. The meeting is called for 2.30; few come before 3 or after." It is to be regretted that in both our Farmers' and Women's Institute work (and the farmers are the greater sinners), they seldom think of starting until about half an hour after the time announced. We advised last year, and it was followed out quite generally, I think, that when the hour of commencement has arrived, you should begin with the Question Drawer, and some question of local interest should be taken up and discussed until you have a fair audience, and then begin the addresses of the day. These discussions can be made of great value, and when the members come to appreciate their worth, I think you will find that in a short time there will be a tendency on the part of the people to come out more promptly.

"Is it the Secretary's place to ask members to rejoin; if not, whose place is it?"

Mrs. E. G. Graham: Every person's place.

Mr. Putnam: Many people will not join unless you ask them to. It is the duty and privilege of the private member to ask her neighbor to become a member of the Institute.

"What do the members think of changing Presidents each year, that is, Branch Presidents?"

Mrs. C. H. Emerson, Burlington: I think the President should perhaps occupy the position for two years, and then if you can get anybody to take her position, it is time to change. I have been President three years because nobody will take the position. I think it is too long to stay in office, and I think the honor should be passed around, and no one should occupy the place more than two years.

Mr. Putnam: I do not think any general rule can be laid down regarding that. It is well to have a change occasionally. I think they will keep Mrs. Emerson in three or four years longer.

Member: I think it spoils any organization to keep the same President in year after year. (Applause.)

Mrs. Emerson: I had a report from the Secretary of Halton County last week on that matter, and she tells me of one Branch in our County of seventy members which has disorganized because they could not get any person to take the presidency. In a case like that, what are you going to do? That is the position I am in to-day. I do not want to be president, but it is either that or the organization would go down, and I think it too important to let it go down for the want of sympathy at the head.

Member: In the Hand Book, it is advised that the Secretary and President make their visits at separate times.

Mr. Putnam: I do not know why I advised that; possibly I had heard from some Institute where the President and Secretary did not get on very well.

(Laughter.) I think possibly the real reason was that the Branches like to have the District Officers visit them often. If the President and Secretary go at different times, then each Branch will have two visits during the year from the district officers. When the District President and Secretary go to an Institute Meeting together, and when a full programme has been provided, they have not an opportunity to say all they would like to say, but, if only one officer goes, there is always time to hear from her.

MEMBER: It will cost more to send them separately.

MR. PUTNAM: It will cost a little more, but you get two visits for practically what it now costs for one.

I will now call on Miss Watson to answer some questions.

MISS WATSON: I have a question about the Demonstration Lecture Course, which seems to be interesting many people. The questioner asks: "Can the work of the Demonstration Lecture Course be taken up by correspondence, providing the person cannot get to the meeting?" I wish it might, but at present I do not see any way of giving or providing the necessary attention. Correspondence work takes a great deal of time, and it practically amounts to one teacher for one pupil. It takes much longer to write out and arrange for any instruction of that sort. The only suggestion I have for this individual is that there is a little pamphlet on the subject of cookery in my collection by which she may help to teach herself, and if this questioner will send me her address, I will loan her this pamphlet just as I would loan it to any other enquirer from the Women's Institute.

"Can ladies who are not Institute members take advantage of the cooking lectures?"

MRS. C. H. BURNS: The ladies of the Institute that I have been connected with are very anxious to get anyone they can to join the classes. They feel that if they are not members, they will become interested and will join. This is especially true of the young girls.

"What should the County Presidents do about visiting the various Branches when the Branch does not send her an invitation to attend?"

MRS. E. G. GRAHAM: If you have a really good friend, you do not wait for her to ask you to go and visit her. (Applause.) If you feel as you ought to towards your Branches, go and visit them at any time. Our District Secretary drops in occasionally, and we like it. It is the District that pays the way of the District Officer.

A MEMBER: There are certain seasons of the year when the Branches wish the President to come, and if she goes unasked, the expense is involved twice, and we are trying to save expense. I am a District President, and one of the branches in the riding has not invited me, and I have not gone. I understand there is a special meeting to be held later on at which I am expected. If I had gone before, possibly I could not interest them, and I will be able to now after having attended this Convention. Have I done wrong or not?

MRS. E. G. GRAHAM: No, you are quite right. If you knew there was a time coming when they would want you, of course you would wait for that time.

"What is the proper way to conduct a Question Drawer?" Answer.—We have this feature in our meetings, and we find it is one of the most interesting things. We pass a box around at the beginning of the meeting, and when we have no address ready, we discuss these questions. If the President is not able to answer the question, then any lady in the meeting is asked to; and if nobody can answer it, it is left over for the next meeting, by which time we can usually find an answer. This is one of the most interesting things in our meetings.

A MEMBER: As County President, I send a card for Christmas or New Year's to each Branch Officer in the county. If there has been trouble of any kind I write to these members.

MEMBER: We have roll-call as a rule every month, but the members will not respond. A fine was suggested this morning, but I fancy our members would prefer to pay this, and while we do not depreciate the value of money, we would rather have a recipe or some new method of doing some household duty.

MRS. HOLDSWORTH: When we hear that little word "fine," we naturally look for something connected with the law. I am only speaking from personal experience, but it seems to me a fine is a little bit wrong. We must lead our people and not drive them. (Applause.) I have found that those who are the most backward at the first, sometimes become our best workers. I know that no one ever fought against the Institute more than I did, and now I love the work and I would not leave it for anything; I trust I shall have many years to spend in the work. I love it above all other work, except my church work, and I do not think you need fear those who at first oppose you or refuse to help you. They will probably come in line in time, and if they do not, you certainly cannot put them there with the whip behind.

MR. PUTNAM: We are very anxious to hear from some of our Institute women from the north. We have Mrs. Welburn from Uno Park and Mrs. Macdonald from Manitoulin Island, Mrs. Best from Parry Sound, and Mrs. Kirstine from Haileybury. I want these women to say something to us later about the work in the north.

WHAT WE CAN DO FOR THE BOYS.

MR. C. J. ATKINSON, BROADVIEW BOYS' INSTITUTE, TORONTO.

Madam Chairman, Ladies and Gentlemen,—I think this is an occasion for mutual congratulation. I think that we should congratulate our fair Province that it has organized such a Women's Institute. I think that we should congratulate you delegates who are here upon so magnificent a convention. I think that we should congratulate the boys that the Women's Institutes are interested enough in them to put upon the programme the theme that I am to speak of, "What we can do for the boys." My answer is, "Give the boys an opportunity to do for themselves." Anything I may have to say has a bearing upon that finding.

The boys' work with which I am connected has had for its motto from the very commencement, "Learn to do by doing," and after some ten years' experience, I am convinced that that motto sets out better than any one we could choose, the most practical way of getting boys interested and of helping them. There are a number of difficulties that you have in dealing with boys, and I propose this morning to enumerate some of these and see how best to deal with them, and with this thought in mind, "teaching them to do by doing," and "getting them to do for themselves rather than do for them." Lack of respect for experience, lack of respect for authority, and those in authority, is one of the things we find is rather difficult to deal with in boys. Undoubtedly the best way to overcome that—and I think it has been the experience of many besides myself—is to give them responsibility, to have a system of self-government of some kind, by which they will feel responsibility and assume it, and then they will appreciate the responsibility other people have in dealing with them or with other matters. Self-government then is an important matter in dealing either with the individual or with a group of boys.

Early in the history of our work we organized a municipality composed of those who were cultivating farm plots. They elected their reeve and council, and appointed their pathmasters and weed inspectors and constables, and we found frequently that the boys who had been the greatest trouble, often being the most forward boys, were those elected to office, and immediately became the most careful custodians of the law, the most insistent upon others doing their duty and obeying the law. Not only that, but they themselves seem to change their mode of procedure almost entirely in its relation to other boys. Courts were established, and the reeve, by virtue of his office, was the judge, and cases were brought before him to be dealt with, and were dealt with with the greatest of care and good judgment, so much so that it was found in a short time it was not necessary for any of the adult leaders to be present in the court room. They deal with the boys in the township who commit depredations either by taking other boys' vegetables or breaking some of their tools. They not only dealt with the boys in the township itself, but they found it necessary to deal with boys outside our township entirely, and you can see that difficulty would arise here in the enforcement of their sentence. I will cite one case to illustrate:

A boy who lives on a neighboring street was summoned to appear before this court for stealing the vegetables out of their township, and, when the notice of summons was sent to his house on a printed form which we use, it was disregarded, and at that sitting of the court the boy failed to appear. The boys came to me and wanted to know what they had better do. On occasions like that you have to step in and assist them. I said I would write a letter to the parents, and I wrote a letter and said they would have their choice of either coming before our court or before the Children's Court, and notified them when the next sitting of our court would be held, and the mother and boy came for that court. When the mother came, she wanted to see me, and she insisted that all this trouble was quite unnecessary; that her boy would never steal anything. He assured her that he had not taken anything; she had always found him a truthful boy, and she said we were entirely mistaken, and we should not put people to trouble like this. When she found I was not going in, she refused to go to court, but later on she went in. In about fifteen or twenty minutes she came back to my office, and the boy was with her and he was crying. I asked her how the matter had gone, and she said he was guilty all right. She never knew him to deceive her before, and she was very much disappointed. I asked her what was the penalty. "Oh," she said, "he has to pay 35c. to reimburse the boys for the vegetables he stole, and he has to put in four hours' hard labor on the roads of the township." I said, "Is he going to do the labor?" She said, "Yes, if I have to stand over him with a stick;" and he did the labor.

Little instances like this show how seriously the boys take these matters. It is a real thing for them. This court and this system is as important to them as it is to the adult later on in life, so that you are not only getting over the difficulties with the boys theemselves, but educating them in citizenship.

I suppose there is no one in authority in the community who is more ridiculed and with whom you have greater difficulty in getting the boys to respect than the police. The average boy considers that the policemen are to be made a butt of by their jokes and fun as far as possible, and early efforts that I had, trying to get them to appreciate and respect the authority of the law as represented by the blue-coated policeman, were almost futile. I remember before we organized, when we simply had a boys' brigade and used to meet in the church basement for drill, the boys would go out from their drills as they go out from school. If you pass a school when the school is just out, you will appreciate this. An old school teacher told me that he used to frequently go down the street to just stand at the corner when school was out because the noise was music to his ear. The policemen do not always appreciate it in that way, and there was one in our beat who did not, and would try to interfere with them. He came in one night quite indignant and reported to me that he had tried to interview certain boys and they had run, and when he ran after them, he said, "I believe they just kept me about so far behind to keep me going," and I think they did, too, because he could not catch the boys. He said, "I think you should ask your boys about this," and I assured him that I would, and I pointed out to the boys that this policeman on the beat was a constable and they should show him respect. They should salute him as they did their superior officer, until he salutes you in return, so that night when they dispersed, I cautioned them about noise and there was not much noise. I thought things had gone on beautifully and that the boys had taken my advice splendidly. But the policeman came in more excited than ever that night. He was quite put out, indeed. "Why," he said, "this is worse than ever." "What is the matter?" I asked. "I spoke to the boys and told them they should respect you. What have they been doing now?" "Why," he said, "the rascals came out and they came up to me and saluted as individuals. They saluted as companies, they saluted as battalions. They marched to the corner and came back and saluted." (Laughter.) He said, "They have been keeping this up from the time they went out until now." I said, "They are not disturbing you or making any noise?" "No," he says, "no noise. I said, "Did you salute them back?" "I salute them back? I should say not!" I said that was the trouble. "I told them to salute the superior officer and salute him until he salutes back, so that they would be sure he recognized the salute. If you go out now and the boys are still on the road, salute them and there will be no further trouble." And I think he did, because I heard nothing further about it.

As soon as we got the little township going, we found depredations were being committed. They organized a little police force of their own, but they could not be there night and day, and there was a policeman passing all night long. I said, "Why not 'tell your troubles to the policeman'?" They did not like to approach the police at all. They said they did not want to ask any favors of the police. Vegetables continued to disappear and in time they grew wiser and they wanted me to speak to the policeman. I said, "No, it is your job," and so they notified the policeman on the beat and arranged for him to keep special watch on their property. He did so well that the very first night he captured three boys for us and they were dealt with. Immediately, of course, the police went up in their estimation; that seemed to be the turning of the ways. I had found the way to get the boys to respect the policeman. The way to get boys to respect authority is to let each feel he is there for a purpose.

Another great difficulty we find with boys is to get them to respect other people's property and in failing to have consideration for others. If you want them to respect other people's property, make sure that they have some property of their own to respect. We find that as soon as a boy starts to make things for himself, he learns to appreciate and will not destroy the things other boys are making. That has a most marvellous effect upon boys. The most vicious and destructive boys, when they get property of their own and commence to make things of their own, if any interferes with them they are the most indignant of all, and immediately you draw their attention to the fact of the way society is to be governed in regard to these things, they grasp the idea; they grasp the idea that they must have respect for other people's property and other people's feelings.

Speaking of vicious boys, not only of his destructiveness, but his cruelty, I have found a remedy that I have never tried without it being successful. In regard to their cruelty to animals or cruelty to other small boys, it is cured just like all these other things, by bringing in the opposite and getting them interested; so if you encourage boys in keeping pets of any kind, you will be astonished at their choice. It may be pigeons or rabbits or a dog, or it may be white mice. It does not matter what it is, so long as it is something alive and something upon which they can centre their sympathy and interest. It is interesting to follow the different degrees of progress—how a very cruel and disreputable boy is gradually changed to be careful and considerate. He gets a kindly feeling for the animal, and he will have a kindly feeling for all humanity as well.

Laziness is a trait that has to be overcome in boys. I doubt if there are many actually lazy boys. We think they are lazy because we insist upon their undertaking duties and tasks that are not congenial. If we feel that they should do these duties and tasks, it is true we should not excuse them, but why not give them the work habit by giving them tasks that are congenial to start off with. When, for instance, in our little township, we offered farm plots to boys who would cultivate them, many of the parents were astonished to find boys who would not cultivate a plot in their own back yard, would come to us and work faithfully and produce results.

I remember on one occasion a good, old, friendly Dutchman in the neighborhood had several boys and one of them took up a plot, and one night here was our friend looking over the fence and laughing. He was corpulent, and when he laughed, he laughed all over. He was laughing to himself, and I asked him what was amusing him, and he said it was to see his boy working. He said, "He is such a lazy boy, we cannot get him to do anything at home, and I heard he was working over here, and I came over to see him." The boy had not seen the father, and with a spade he was industriously digging up the earth, and the father was standing at the fence laughing, and when the boy did see him he rather felt ashamed of himself, that he was working and injuring his reputation. They had been accusing him of being a lazy boy so long that he really believed he was lazy, when he was not at all.

Why not use judgment in this and get the boys to have the work habit by giving them congenial things to do? We found it possible to get a fence built around the athletic field up at the camp last year. The boys cut down the timber in the woods, skidded it down to the lake, floated it down and built a wharf. Making a raft, they piled stones on it away up the lake and brought them down to put in the abutments. They built a "Shoot the Chutes" and a boat house—just fifty or sixty boys. Of course we were not foolish enough to keep them at this all the time, but they were prepared to work longer hours than we wanted them to. They like to work at things they are interested in.

Now we come to the question of morals, and this is one in which we are deeply concerned. How are we going to get the boy to improve his own morals? Is there any way that we can adopt the same principle of suggestion and get the boy to take hold of this matter himself? I think there is. We have found in the club work that the boys were encouraged in moral reform. We have a moral reform league that takes up everything. It has about sixteen different subjects that it is dealing with, and it gives a week to one and a week to another. One temperance week they got about two hundred signatures, not only our own club boys, but others, and when we get boys working along these lines and debating these questions, then it comes from a different angle. They see it from a different viewpoint entirely. We have an election on down there now, and both parties, the Government and Opposition, are seeing who can take the most advanced stand on moral questions. (Applause.) There are bulletin boards posted up there with the new planks and replies to something the other side have done during the campaign, and when the other side does something that they do not consider right, they point that out as a sample of the work they are doing when they profess so much for moral reform. When you get that spirit infused into the boys, you need not fear much about the morals of the boys, because they are watching everything.

As a rule a boy is not very sympathetic. If he is he does not show it in the way a girl does. A boy will not shed tears so easily, but he is so loyal that he will shed his blood if necessary. He won't come and thank you for anything you have done for him; he will show his thankfulness in backing you up in anything you are doing. Later on you will get the thanks, but not while he is a boy. We have found that in mission work, Sunday School work and other lines of work, you can get him interested in just the same way.

We have all forms of companies for getting the boys interested; for instance, we have Joint Stock Companies managed entirely by themselves. They have a company for bee culture, the Broadview Boys' Trading Company, Limited, the Broadview Boys' Transportation Company. They purchased second-hand wheels to provide means of access to some farms we had about five miles out in East Toronto. These various companies have declared dividends not less than twenty per cent., and sometimes as high as fifty per cent. We found the boys were getting graspy after the dollar or the cents, and that our savings bank was one of the most prosperous institutions around the place They organized a $100 Club; any boy could get access to it who had saved $10.00, and who had started to save $100. They found that Carnegie said that the greatest difficulty was to save the first $100, and they thought if they saved that first $100 they were on their way to be Carnegies. When they saved $25 they got the first degree, the second degree when they saved $50, and the third degree when they saved $75, and full membership when they had $100.

They had meetings and they secured men of finance to come and tell them how to invest small savings to good advantage. I thought it was far more important to educate the boys to spend money, and various plans were adopted, but nothing drew out the sympathies so much as the one I am going to close with. This idea was suggested by a lady. She said I think you should get the boys to adopt another boy; get them to adopt an orphan boy. I suggested that to one of the leaders, and he thought that was splendid. We left them a week to consider it, and then we took a vote and it was decided unanimously that they would adopt a boy, and they appointed a committee of three to select the boy, and they visited a number of homes and institutes and consulted Mr. Kelso. I suggested they should get a boy who had not a chance, and one boy said, "Yes, let us get a boy who has not half a chance," and so they started to hunt for this boy who had not half a chance. They reported they had seen three, any one of whom would be suitable. One was a cripple, and they said, "We started out to get a boy that has not half a chance, and we will find one that has not a quarter of a chance," and unanimously they decided to take the cripple and he was adopted.

They made arrangements with the caretaker of the Institute, and you have no doubt seen little Scotty stumping around there, supported by the boys. They are so generous that you would be astonished. We have collected moneys and got fair responses, but a collection from thirty or forty boys at a meeting that would ordinarily come to a dollar, if we announced it was to help the other fellow, it would jump to four dollars, averaging ten cents a boy; some would give more and some less. There is a direct appeal to their sympathies and it brings the response every time.

We found as soon as Scotty arrived on the scene, if he was not able to hobble out to the football matches, the boys would carry him on their shoulders, and the boys who carried him were the most troublesome, but they were always the most ready to play the part of the big brother and help the other fellow.

When Christmas came last year, Scotty had been with us two or three months, and the boys wanted to make him a Christmas present. I advised them to combine their Christmas presents and give him clothing and things that would be needed by him. He would not want the hundreds of things that would be showered in by them. They took his advice, and appointed a committee to arrange the matter. They told him about Santa Claus, and he did not know what to make of it, but he hung up his stocking in the doorway upstairs, and the boys filled these two stockings with things not very desirable. They could not have gotten the presents into them. They took one room down stairs and had immense stockings made and they were filled, and the whole room was filled with things from Santa Claus.

Scotty got up early in the morning. They heard him stumping along the hallway, and he commenced tumbling out the old things, rotten potatoes and one things or another, and he went right down to the very toe of the stocking and then he went stumping back and he was saying to himself, "I never believed in that old Santa Claus story anyway. But he had not got far when the Committee away down below called, "Oh, Scotty, here is where Santa Claus has left everything for you," and he came almost tumbling down the stairway, and when he got into the room and they said, "Everything here is for you," what do you suppose Scotty did? He sat down on the table, put his head in his hands and cried. He was not crying for sorrow, he was crying for real joy. It was the first Christmas that he had enjoyed, but he did not enjoy it half as much as the boys did. They asked him how it compared with his last Christmas. "What did you get last Christmas?" and he said, "We got an orange and some candy and got an apple or two, and then some of the Sunday Schools sent in toys. I got a puzzle, but it was not all there!" Puzzles are bad enough, but when you get a puzzle that is not all there, it is certainly depressing, and that was the condition he was in. "And how about the other boys?" "They got broken toys and books that there were leaves out of." Many of us have urged children to be generous to others and to bring any presents, but if you ever do it, I hope you will kindly tell them that little story and tell them they are really offering these things to the Lord, and that He wants the very best. Nothing but the choicest could be offered as a sacrifice in the old days, and it must be new books and new toys and puzzles that are all there.

We can only get out of this work what we put into it. My whole argument has been to let the boys do it themselves. A clergyman told me that he was up in

Muskoka for holidays, and he went up there with the intention of putting in two or three weeks for rest, but they came to him and said, "There is a school house, and we have been disappointed in the man who was going to preach. Won't you go over?" and he felt he could not refuse. He went, and his little boy went along too. It was a very hot Sunday, and he said he did not think he ever preached anywhere where it was so unsatisfactory to him. He did not seem to get the attention he should; everything seemed to go wrong in the service. As he came out he noticed a box at the door labelled for contributions, and he thought to himself, "I have contributed so little to this service, I had better put something in the box," and he put in 50c., and was feeling better than he did before. As he was going down the road, the sexton ran after him and caught up to him and said: "Are you the man that preached this morning?" and he said, "Yes." "We always give what we find in the box to the man who preached, and here is 50c. for you this morning." So he took the 50c. and smiled to himself and put it in his pocket, but his boy kept looking at him, and in a little while the boy said: "Why, Dad, if you had put more into the box you would have got more out." There is the reply; what we put into anything is just about relatively what we get out of it. If we are interested in the work for the boys and we put a lot into it, we are going to get a great deal out of it. (Applause.)

The Chairman: I think this is an epoch-making address, and I think we might adopt the motto, "Learn to do by doing."

I will now call upon **Miss Farlinger**, of Morrisburg.

Madam Chairman and Ladies,—Mr. Putnam asked me to give a brief report on "Improvement Day" in Chesterville. We undertook to clean up the town in the spring, and we were most successful.

After the Chesterville women had cleaned up their homes in the spring, they turned their attention to the streets of the town. The Women's Institute sent a committee to interview the village council to ask their co-operation in improving the town. The council granted it, and appointed the first day of May as a public holiday. The women got up a petition, signed by the school trustees and business men, that they would hold this holiday and give their assistance in the good work. The Nation River winds through this little town, and the banks of this little river have been for the past century a dumping ground of all manner of rubbish.

The Institute women asked the men to take the banks of the river in charge. Then the pupils of the schools, public, separate and continuation, were divided into groups under the ladies of the town and were provided with tools. The merchants loaned their tools for the day and everyone who had a rake or a hoe or a wheelbarrow or a cart produced these and the work of cleaning the town commenced.

It was most successful. Many hands make very light and quick work and before the evening they considered that the town was very well cleaned up and a decided improvement. They celebrated the event by a street parade and a grand bonfire in the evening. This is just one example of what an Institute in a small village can do. Last month at their meeting they organized a Horticultural Society.

I would like to say a few words with regard to our Institute in Morrisburg. Yesterday it was suggested that the business and professional men of our town should give the women talks, and I would like to tell you that for the past six months we have been having these talks from our business men. We have had talks from a doctor and a banker and the banker told me that it was astonishing the number of women that came to the bank and transacted their own business instead of sending their husbands or brothers. We had a lawyer who gave us a talk on "Law for Women and Children," and he showed us that the laws for the women of Ontario are quite the best in the Dominion. In September we had a dentist give us a lecture on teeth, and he has offered to repeat it in the schools. The women of the Institute think of suggesting dental instruction for the school children, and we are offering prizes to the pupils of our public schools for essays. We are thinking of contributing individual drinking cups for the pupils of the public schools. I hope some of these suggestions will be of interest.

A MEMBER FROM LANSDOWNE: We gave a tea in the Town Hall and realized $70.00, which we gave to our Library Board. We asked to have a woman from the Institute as a representative on that Library Board, but instead of one we got four of our members on the Board.

MRS. WALTER KIRSTINE, Haileybury, New Ontario: Madam Chairman and Ladies: I am more accustomed to working than speaking. We organized in New Ontario about six years ago with three branches. We now have a membership of over 250, with thirteen branches. (Applause.)

I do not think any of the ladies here except those who come from new sections, know the difficulties of getting over New Ontario roads. Most of us have to walk five and six miles to attend the Institute. Our best Institutes are the most remote; the two Institutes that have the largest membership are the farthest away in the country where it is the hardest for the members to get together. There is one thing about which I wanted to ask advice from the ladies to-day: I feel that in this new country we 250 women should have the right to ask for something from old Ontario and I think that something should be done for our schools. They are what are most needed. Our school trustees are all men from old Ontario sections and they are not all up-to-date men by any manner of means and I think if the Old Ontario schools would try to teach something more than they are doing as to proper sanitation it would help us. We have no sanitary arrangements at our schools and they are not apparently considered of enough importance to be kept clean. Of course there are difficulties. There is the difficulty of not having the means, but I trust that you will emphasize this and see that the children are taught better sanitation in Old Ontario schools so that when they go out to the new country they will be able to help out instead of hinder, as some of them are doing now.

MRS. J. T. WELBURN, Uno Park: Madam President and Ladies: I can hardly express how glad I am that I have come to this convention. It is the first time our District has had a representative. Until this year we felt we could not afford to send a representative to the Provincial Convention, but we are growing larger every day. In the last six months we have organized four new branches: Miss Campbell organized three this summer and since then Mrs. Kirstine has organized one at North Cobalt.

You understand we are living away out on the silver ridge and most of us are away from the city of Cobalt. The country is all new. I have been up there eight years and there were scarcely any roads at all when I went there. Our best Institutes seem to be the most remote. As District President last year I tried my best to reach all the Institutes, and I think I almost did it. In order to go to one Institute I had to get a young man to drive me with a horse and cutter five miles, and when I got there I was surprised to see the number present. The meeting was held in a private house and the room was filled with ladies. It was very cold, being right in the middle of winter, and mind you, there were eight small babies at that meeting. (Applause.) These ladies do their own housekeeping and they could not go to that meeting unless they brought their small children, but they did not disturb the meeting a particle. They apologized to me for having so many babies, but I said "Never mind that, they are our future members. I would not want anyone to stay away from the meeting on account of the babies."

Two weeks ago I went to Chester's Corners, one of the new branches Miss Campbell organized. They had asked me to go down, and I wanted to go just as much as they wanted me. There were seven babies at that meeting. It was a cold, windy day. I was nearly perished myself in getting there. I had to drive eight miles and the roads were rough. One lady came in and I asked her "How did you make it?" and she said "I was determined to come," and she just looked it. We had a splendid meeting. From the way they set out I could see they meant business and I meant to help them all I could.

Institute meeting at West Korah, June, 1912.

Last year I made up my mind in the early part of the winter that, if it were possible, we were going to have a Women's Institute Convention in that District. I looked at it from every standpoint and tried to figure out the railroad and the rates and everything and I decided that Earlton was the only place that everybody in the district could reach and return the same day. I went to Earlton and explained what I had in my mind to the women. They took it up and said, "We want the Convention." I did not have to ask them if we could hold the convention there, they said "We want the Convention." They had two churches and offered either one.

The 18th of May was a lovely day and the ladies turned out from all over. I was hoping for big things, but it far exceeded anything I had anticipated and there were one hundred ladies and thirty-two babies at the Convention. (Great applause.) We had printed programmes and we had one lady from every Institute to take up some special subject. I had no trouble whatever in getting them to do it and the programme was carried out to the letter; we did not miss a number Every woman had her paper ready in hand and knew what she was going to talk about. We closed our convention just in time for the train. We could have had a night session if we had continued the discussion. Everybody thought it was the most successful thing we ever had and some were so enthusiastic afterwards that they wanted to hold a convention this fall, but some of us did not feel equal to a convention this fall. However, we are going to have another in the spring and we think we will hold it in New Liskeard. We were told last night and yesterday afternoon and again this morning that we should keep out of politics. I think that may be we should, but while I was sitting in the hall yesterday some lady said something about not wanting to have anything to do with the Yankees. It just stirred me up a little bit, because at heart I am an American, and I thought I could see that in the very near future Canada would be too small for us and we will want to step over the border and get these American women in so that we can teach them to keep house, and they can help us, and we could, in our turn, help them a little. Just imagine us over there organizing Institutes! I think it would be something grand.

We need a great deal of encouragement in New Ontario because there is a great deal of discouragement.

Families move in and the young women—I should not say that, for they are really only girls that ought to be in school—get married to men old enough to be their fathers and they are scattered all through the country. My husband is a business man and deals with the country people, and I think I have had more chance to see these people and how they live and what they do than anybody else, and it would make your heart ache to see how dozens and dozens of these poor girls are keeping house. They all have children, but they do not know how to take care of themselves, let alone their babies, and we find that these are the people that need our help, but it is almost impossible to get hold of them. It is the better class of ladies that are joining the Institutes and not the ones that really need our help. I have suggested two or three times that we should form a committee and go to these homes and ask if we might come there and help them. In two or three cases we have done this and have been successful. But I would like some suggestions so as to know exactly how to reach these people and how to help them. I think in this new country there is more real work for the Women's Institute than there is in Old Ontario. There is more need of it.

MY CHILD'S FUTURE.

MRS. M. N. NORMAN, TORONTO.

Madam Chairman, Ladies and Gentlemen: I should like to give three cheers and a tiger for Mr. Atkinson. (Loud applause.) I wish we had hundreds of him! His Broadview Boys' Institute has been of incalculable value to the boys belonging to it, and it has been of the greatest help to their mothers.

I am to have the privilege of speaking to you on the subject, "My Child's Future." Of course, when I say *my* child, I mean *every* child. The real mother heart is big enough to take in all the children of the world. (Applause.) To seek to save our own children, without seeking to save our world children, is an indication of stupidity, as well as of a narrow motherhood; the evils, which result from the ignorance and defencelessness of the uncared for child, reach their ugly and defiling tentacles into every part of society. No one is safe. Only by making such conditions as will ensure the *right* kind of boyhood and girlhood, manhood and womanhood, can we have a safe, healthy, happy humanity.

To those who consider that the present evils are just and inevitable I have no word to say. But to those who long to see better things, who desire the best things in life for all human beings, who look forward to the time when love will be the ruling factor in life—I earnestly urge a consideration of the fact that the child is the one hope of permanent betterment. This is our one seriously important concern: the making of healthy, wise, educated, refined, honest, kind citizens; everything else should take second place. It is easy to see that, having done this, the laws could go away for a perpetual holiday. When we have learned to love our neighbors as ourselves we will need no law to keep us safe. We can hasten that time by teaching our boys and girls that love, not money, is the most valuable asset—that love, not social position, is what makes men and women worth while—that love, not ambition, should be the motor-force of their lives. Of course, when I say love I do not mean "in-love"; "in-love" means passion—good and beautiful in its own place; but love means *service;* that which constantly seeks to bring joy into other lives.

In one of Horace Taubel's wonderful poems is this line: "The father creed must give place to the child ideal"; which means that men and women must realize that woman's place in life must not be one of servitude to man, nor man's place in life that, merely, of bread-winner—but that together they must unite their forces to guarantee the child its right to be born well and then to be guided and guarded into the right kind of citizenship.

To that end our boys and girls of this, our day, must be taught. They must get such knowledge as will make them recognize it as imperative that *their* children shall be born with good bodies, and shall have such opportunities as will ensure them a chance to live happily.

I remember my father's refusal to let me have a horse until I learned to hitch and unhitch, harness and unharness—deeming that knowledge necessary for my safety. But do many of us ever give a thought to the question of our fitness for the most serious, the most sacred function of life, that of bringing new lives into the world? No—we leave all that to chance! Why, we are even told to-day, in this enlightened age, that it is a debatable question whether our children shall be taught concerning this terrible vital matter. When I hear anyone talk in that way I always wish I could hold up before them—printed in letters of fire—the facts of which I am aware concerning the conversation, the written things, the actions of many of our children. What I know comprises a very small part of the truths, but it is sufficient, if it were widely known, to make the real mothers drop their bridge clubs, their dinner parties, their brooms and dusters, their looms and needles, and gather the children of the world close to them. They would tell them the truth about life, and they would see to it that they were safe: for they would realize that death is to be preferred to the continued pollution of our race. They would realize that only knowledge and wise protection can save our little ones.

Our girls should be taught to ask themselves such questions as: Have I the kind of body which is worthy to be the temple of the sacred office of motherhood? Have I a disease which it is possible I might transmit to a child, and curse it from the beginning with a weak body? Have I the sort of equipment, mental, moral and physical, which will make the best kind of mother?

Our boys should be taught the necessity of taking care of their bodies, of keeping their minds clean, of refusing to allow anything debasing to enter their lives, of undertaking the vital importance of being worthy of the serious responsibility of fatherhood.

You say: "We cannot talk to our boys and girls about these things; they do not understand." Those of you who have had little children to deal with know that anywhere from the age of four years they begin to ask you questions. Do you suppose, when you refuse to answer their questions, that they cease being curious? Is it better for us to tell the children all they can learn wisely, or is it better to let them get their knowledge from the gutter?

We have all kinds of machinery for the punishment and correction of humanity gone wrong: Prisons, policemen, juvenile courts, reformatories, refuges, asylums; but little is done to start it right and keep it going right. We need to give the right kind of teaching; we need supervised playgrounds, many public parks, public baths, we must have free medical inspection and attendance of school children, free dental parlors, and the schools used as social centres. Children need companionship; they *will* have it; we must see to it that they have the right kind in the wisest way. Parents should be the playfellows of their children. They should take part in their games, and should share their lives in every way.

You women, especially, have such a great power. Oh, if you would only use it, bringing your minds, your sympathies, your understanding to bear upon this greatest and most important of all questions—*The Child and its Future.*

AFTERNOON SESSION.

Thursday, November 16th, 1911

Miss Laura Rose occupied the chair.

The Chairman: One of the very pleasing things in connection with a gathering of this kind is meeting those you have met out on the work. My only regret is that, with so many coming up speaking to me, I cannot possibly call them by name. I would like to thank you all for the very nice time you give the Department Lecturers.

I have a little talk on "The Secret of Perpetual Youth." It is natural that I should select a topic like this. It is true that before the Women's Institute was organized, I was working in the Farmer's Institute. I was the first woman who took up regular Women's Institute work and I attended the first meeting down at Stoney Creek. Little wonder is it then that the ladies are twined around my heart. I feel that I am a very part of the Women's Institutes. I have been so much among you and I have received so many kindnesses from you, I want to forever linger in your memory, as I hope you will always linger in mine.

THE SECRET OF PERPETUAL YOUTH.

If you would enjoy old age, cultivate some hobby. Grow enthusiastic over something, little matter what. It may be embroidery or painting, or music, or flowers, or collecting china, church work or temperance reform, ladies' aid or women's suffrage—but let it be something. Identify yourself with something and persuade yourself that you are interested, and, before you realize it, it will be an actual fact. Having some special interest will bring about you a circle of sympathetic, congenial friends and create a community of interests otherwise scarcely obtainable.

One's hobby, to be really enjoyable, should be a useful one—one that gives pleasure or is beneficial to others, for it is not what we have, but what we share, that gives us sincerest joy. Take a garden for instance—queen of all delightful hobbies. There you may bring sorrows and bury them and in the doing unearth your pleasures. Many a bad temper and nervous irritability has been dug into the earth to be resurrected into a fragrant lovely flower.

Do not say you are too old to take up new ideas or renew old ones—no one is ever too old. Perhaps you read in the paper recently about Mrs. Amy Winship, aged eighty-two, who has just enrolled as a junior in the University of Wisconsin. Her life has been so busy until five years ago, that her hunger for things literary could not be satisfied. Mrs. A. W. Truesdell, aged eighty, felt the need of polishing up a bit in English poetry, so attended the summer school of the California University. These may be extreme and isolated cases, but they emphasize the fact that the lack of ambition or desire, rather than the accumulation of years, is the hindrance.

So many of our young girls of to-day will develop into dissatisfied old women because they are failing to cultivate their minds along some particular line. Because the silver mingles with the brown of our hair and wrinkles creep from the corners of our eyes and mouth, should we betake ourselves to an arm chair by the hearth and read our Bibles and church paper, and knit scarfs for the far away mission fields? These things are all right, but should not be all that is relegated to the old people. So many, as they advance in years, give up all their accomplishments—their playing and singing and painting and embroidery. Lately I heard of one married lady who practised fifteen minutes every day and so kept up the music she knew. How delightful to see the mother playing for the daughter's singing!

To go on with that enthusiasm of expecting better things, to feel that the best is ever before, not left behind, is to have in our veins the elixir to ward off old age and keep our hearts perpetually young. Believe me "to travel hopefully is better than to arrive."

"Let us ever go on. 'Tis the still water faileth.
Work for some good, be it ever so slowly!
Cherish some flower, be it ever so lowly!
Labor!—All labor is noble and holy;
Let thy great deeds be thy prayer to thy God."

I have one question which I will answer; "Should an Institute appoint a non-member as a delegate?" No.

ST. JOHN'S AMBULANCE ASSOCIATION.

By Dr. C. J. Copp, Secretary of the Provincial Committee, Toronto.

Madam Chairman, Ladies and Gentlemen: I am sure you have all derived a great deal of inspiration from the high thoughts that our presiding officer this afternoon has given to you in her opening words and I am glad to say that I have come here this afternoon to tell you of something into which you can throw your enthusiasm, for the benefit of your own immediate community and for the welfare of our own beloved Canada and our Empire.

The St. John's Ambulance Association was organized about thirty-four years ago, shortly after the close of the Franco-Prussian War. When the armies of France and Germany were opposed to one another, there was very little provision made for the administration of relief to those suffering from wounds and disease on the fields of battle, and the philanthropically disposed people of France, Germany and England banded themselves together, separately, and formed national societies for the relief of the sick and injured in time of war. The organization in England developed into what is now known as the Red Cross Society which exists to-day.

Those who were interested in the formation of this society in England, felt that there were many battles fought in life, not on the field of battle, but fought at the machines of the workshop, in the gold mines and other regions where laborers are at work.

A group of men who had been carrying on the work of the order of St. John of Jerusalem in England, an ancient order that was very prominent in the time of the Crusaders and that held the mastery of the Mediterranean up to the time England obtained mastery of the seas, these men approached the late Queen Victoria and urged upon her the desirability of re-establishing the order in England with all its historic associations and of establishing an ambulance department, to be known as the St. John's Ambulance Association. This was away back in the year 1877 and from that time, the Association has been doing work in England and has spread its branches all over the Empire. In 1896, Dr. Ryerson established a centre here in Toronto known as the Canadian Centre. From that was established the Toronto Centre and in this City we have had classes of the St. John's Ambulance Association for instruction in First Aid to the Injured and Home Nursing and Hygiene. This instruction is given to any citizen who cares to join the classes.

Two years ago, the Association from its headquarters in London, decided that we should have a much larger organization in Canada and His Excellency, Earl Grey, was approached and he assumed the office of Patron. The headquarters were removed to his place of residence in the City of Ottawa and that is now the official headquarters of the St. John's Ambulance Association.

Although we have been working quietly, we have accomplished a great deal. In Ontario, over three thousand people have been instructed in First Aid to the Injured, and seven hundred and fifty have been instructed in Home Nursing. In other sections of the Empire the work has been much larger.

It is with the desire of bringing the work of our Association into the rural communities of Ontario that I am here to speak to you this afternoon, and I am going to make a few suggestions as to how it can be done. I am sure that if you take it up with that enthusiasm that Miss Rose spoke to you about, it will be a great success. The work is done in India, Australia, New Zealand and South Africa, Egypt, and even in France they have a centre.

The Association is a teaching organization. It instructs people in First Aid to the Injured—first aid when accidents occur. There is always an interval between the onset of an illness and the arrival of the doctor, sometimes a period of several hours, and often much can happen in that period which would be fatal to the patient or that would prolong the illness, or jeopardize the life in some way. We conduct courses to instruct in First Aid to the Injured, so that our members know how to place splints upon the limb that is fractured or broken, how to deal with a case if it is a plain fracture or if the bone is smashed to pieces; what to do in the case of hemorrhage or bleeding from an artery. Just last week, I heard of a man who was lighting a lamp on his motor car. Something had happened to the gas and as soon as he lit the match and placed it, the whole thing exploded and blew a piece of glass into his fore arm and severed his artery. He came down the street with his artery spouting blood. The simple application of his hand, like that, to his wrist would have saved the loss of blood. We teach what to do in the case of a hemorrhage from the lungs or stomach, also what to do on the onset of convulsions in children and how to prepare the room for the arrival of a sudden case of illness or accident. Supposing someone is injured in your home! What will the doctor be most likely to want when he gets there?

This course of lectures covers a period of about five weeks, a lecture being given once a week. We teach the application of the triangular bandage, the application of splints and how to move and carry the person injured. Sometimes the course will take six weeks, if you have a doctor who does a lot of talking. At the end of the time, you are examined by another medical man and certificates are granted. These certificates in the past year have been signed by His Excellency, the Governor-General, Earl Grey. I do not know whether the Duke of Connaught will be pleased to sign them or not. The teacher of the class must always be a medical man. No one but a medical man may lecture and no one but a medical man examine and these medical men must be registered in the Province of Ontario. This is to keep the standard of the Association at a high point and, when you have taken a St. John's Ambulance course you know what it stands for.

The course in Home Nursing also is composed of five lectures: First, on the selection of a sick room, how to ventilate the room, the necessity of fresh air; how to prevent draughts and the style of bed that should be used. The next lecture will take up infectious diseases. What are infectious diseases? How are they conveyed from one person to another, and how to prevent carrying the infectious diseases from one to the other? How to look after tuberculosis patients; how to look after patients suffering from typhoid fever. Another lecture takes up the making of beds. I suppose everybody here thinks they know how to make a bed, but it is not so easy to make a bed for a patient that is going to lie in it for, perhaps, several years. Other patients are suffering for many, many days. The student is taught how to change the sheets and how to be economical in the laundry. Then there is a lecture on the making of poultices, comprising fomentations, blisters and the preparation of invalid cookery, the regulation of visitors, the record of the history of a fever case, how to take the temperature and the pulse and how to record it on a sheet of paper, so that the doctor will be able to tell what passes on in the sick room during the intervals between his visits. You can see how valuable that would be in any home in the country.

The majority of our homes cannot afford a trained nurse and perhaps it is not necessary that a trained nurse should be engaged, and what you are taught in these classes will be very valuable to any home in the community.

Our third course is one in Home Hygiene and this is the only course wherein we allow the mixing of the sexes. Our Home Nursing class and First Aid class must be all of one sex, but the mixing of men and women is allowed in the Home Hygiene class where we teach the fundamental principles of Hygiene. What is air? the uses of air, source of air, how to bring it into the room to ventilate it; water, where to get a water supply, how to purify the water; sewage and sewage disposal, garbage and garbage disposal; clothing and the merits of different varieties of fibre in our cloth; the importance of the care of the teeth and the proper hygiene of the mouth; the proper use of the bath; all these matters are taken up, covering a course of ten lectures. This is the longest course of lectures of the St. John's Ambulance Association. Last year we had a very successful class in this Guild Hall.

The sanitary course is hardly applicable to groups of women, but a lady said to me one time: "We are living away out in the country districts where we have no proper means of disposal of the sewage and it would be well if we knew how sewage should be disposed of." This course takes up questions of that kind. How to purify water; how to get rid of the coloring that is sometimes found in the natural waters of the backwoods.

Now I will speak for a few minutes on how to set about to organize classes. The first thing that is necessary is to secure a group of people who will conscientiously follow the courses of instruction. Having done that, you should first approach one of the doctors in the town or city and ask him if he is willing to undertake such a course. The next thing will be to communicate with my office and there you will secure a roll of attendance sheets. Each sheet should have on it the name and address of the individual members. An accurate record must be kept of the attendance of these classes, because only those who attend four out of five lectures are eligible for examination. As an Association, we feel that you must receive a certain amount of instruction before you can be assumed to be capable of appearing before an examiner.

Frequently medical men will give their services gratuitously for this work. We have many men in Toronto who are giving their services free and the same in Peterboro, Stratford, Berlin, London and Hamilton. If the medical man expects a fee, you have to arrange with him what fee he would like to have. $25.00 is the usual fee for the services of a medical man. Then you can send to me the supplies for the conducting of the classes.

A set of six physiological diagrams which illustrate the skeleton, plain fracture, dislocated elbow and shoulder, circulation of the blood, the organs of the body and the position of the main arteries in the body so that you may learn where the proper pressure points are. These may be purchased outright for $5.00 or loaned for $2.00 for the class. Then there is a text book, sold at 40c. and a triangular bandage (the same bandage used by Professor Exmough in the Franco-Prussian War). This is made of factory cotton and is forty inches wide, cut on the bias. These are supplied at 15c. apiece. These are sent to you free of carriage so that they arrive at your door at that price and any that are no use may be returned to my storehouse.

Classes are held one night each week until the course is completed. There is no necessity that it should cover six weeks, but it is far better that it should. If you take the First Aid course this year, and take the Home Nursing course the year after, you would then be eligible to be examined for the Medallion which is the cross of St. John. It is placed on a piece of metal and behind that is another cross and on the reverse side of it you have your registry number and your name engraved. This is all done at the headquarters, St. John's Gate, and I may tell you that there have been over 135,000 Medallions issued and over 835,000 certificates issued, up to September 30th, 1910, so there are probably a million certificates issued to-day. This will give you an idea of how the work has been progressing in other parts of the Empire. Canada's share is only 3,000 out of that 835,000. There are over 100 Medallions issued in Canada. We have had classes at Sydney Mines and at Yarmouth. No man is allowed to sail under the British Flag who does not hold a First Aid certificate of the St. John's Ambulance Association. That is a regulation of the British Board of Trade. This will show you the importance that is attached to the certificate in England.

If a man has a certificate from our Association in First Aid and moves from Toronto to Hamilton and takes a certificate there in Home Nursing; then, if he went to South Africa and landed at Cape Town, he could go to the Honorary Secretary of the St. John's Ambulance Association and say: "Here are my certificates obtained in Toronto and Hamilton and I would like to try for my Medallion," and he would be admitted to examination and, if he showed proficiency, would be granted the Medallion. These medallions are issued in gold and silver and bronze, all depending on how much you would like to pay.

There are incidental expenses connected with every class and they must be sent to my office some time during the progress of the class, and before the return of the examiner's report. This fee, $5.00, covers the cost of issuing the certificates for a class of thirty or less. If there were sixty in the class, it would be $10.00. If the class had ninety members, it would be $15.00. We leave the fees to the medical men in the town or city and we leave the payment of these fees in the hands of those who are organizing the class. If they feel disposed to pay the medical man, that is what we prefer. If a medical man has given four lecture courses gratuitously, we make him an honorary member of the Association. Two years ago, King Edward paid me the honor of making me a member of the Order and that is why I wear this badge. (Applause.)

I hope I have not wearied you and I hope I have given you something that you can throw your enthusiasm into. I am sure it will be a great help to you. Oftentimes, children fall into water and everybody stands about, not knowing what to do. If you belong to the St. John's Ambulance Association, you would know what to do and, if it happened to be one of your own children, what a different story it would be. (Applause.)

Mr. Putnam: What age have the students to be?

Dr. Copp: They must be over sixteen years of age. Junior certificates are granted to those under sixteen years of age. It is felt that those under sixteen years of age hardly appreciate the responsibility of what they are learning, not that the child mind cannot grasp the principles. The course of lectures is the same, but the doctor makes it a little simpler if he has a class of juniors.

Member: Can the courses run consecutively?

Dr. Copp: The course in First Aid should be finished before that of Home Nursing commences. You cannot have Monday, First Aid, then Tuesday night, Nursing. We must not have them running concurrently.

Mr. Putnam: I have a few questions from the Question Box which I will answer:

"In a new Branch, would it be well to have the girls bring fancy work or needle work to be inspected and then have a sale, the receipts, over cost of the material, to go to the Branch?" That question is suggestive. All these lines of work are helpful and to be approved of. When I was up in Northern Ontario this year, I gave some suggestions to some of the officers. I called on the secretary of one Branch and suggested to her that it might help the local organization if they would undertake some work in connection with the school, but they had already planned to set out trees and bushes the next spring and were going to make flower beds, and they had held competition in sewing, patching, etc. I concluded I had come across a branch that was a little more aggressive than most in Old Ontario. although it was away up in the north where they plead poverty. It was very pleasing to note the enthusiasm of the people in that part of Ontario.

"Is it wrong to call a District Meeting without notifying the District President until the meeting is over?" The President is the one to give orders that a meeting be called. The President is supposed to carry out the wishes of her executive by calling a meeting.

"How many branches would have to take part in the Domestic Science Course before a demonstrator would be sent to the District?" I do not see how you can introduce the work without having at least five branches. If you have a class every day in the week, it is rather trying for the lecturer. Five branches would be sufficient and that would give you an opportunity of re-adjusting the classes. Sometimes a Fall Fair or a social or something else interferes with the class.

"Is it better to have house-to-house meetings rather than meet in a public hall? What is the result of experience in this regard?" Many organizations have found the work much more successful by adhering to the method of holding their meetings from house to house, while other organizations have found the attendance larger and the meetings much more successful by holding them in a hall. The question cannot be answered in a general way. When an organization becomes large and unwieldy for a private house, then you should have a hall, but if the organization is rather small and in a rural district, it is much better to hold your meetings in a private house. Another question suggests the holding of meetings in the town in winter and in the country in summer. This is a splendid idea.

THE SCHOOL—ITS RELATION TO THE COMMUNITY

By Miss A. M. Hotson, Parkhill.

From addresses already given at this Convention, it is apparent that we are more and more recognizing that the greatest need of communities at the present time is for sound men and women. To secure them it is necessary to provide for the children conditions which produce the best growth. Not only should this be done in the institution of the family, which is the first in authority, and in the institution of the church, but in that democratic co-educational institution, the school, which is steadily growing to be the social centre of the community.

The little child goes at a very early age to the public school and there is such an intense personal relationship between the mother and the child that it is natural the mother's thought should follow wherever it goes, to the rural school, the town High School, to MacDonald Institute, the Agricultural College or to the city centres. Whatever touches the child comes back upon the mother. If the child sits in a draughty, poorly ventilated, overheated or dirty schoolroom and comes home with the croup, an earache, an irritated throat or soiled clothes, it is the mother who must attend to extra washing or ironing or remain up at night as nurse. So, too, contact with roughness of language or action comes back in suffering to the mother.

Consequently, when a Women's Institute appoints a school committee of mothers to see the school and report, they are not appointing ignorant women, but women trained by that unconscious study of the child resulting from responsibility for its constant care. Naturally such women recognize that the community which puts up a school and gathers the children together should in justice take the best possible care of health and morals, as well as intellect.

Had the school a few years ago gone beyond purely intellectual and moral interests, the community would have refused to tolerate it. To-day Institute women, working through local School Boards, are successfully advocating sanitary and more beautiful school buildings and grounds, pure drinking water, fire protection, healthy noon lunches, sanitary drinking cups, sanitary towels and are even beginning to agitate for medical school inspection. The body is a delicate machine. It is necessary to keep it in good running order and the Medical Inspector and school nurse are means to that end and are, therefore, being asked for.

If it is true that the body is a machine, it is also true that spirit creates and controls the machine and spirit is contagious. It was the spirit of the teacher in the old log schoolhouse, caught by the boys and girls, which helped to make the men and women who have built up this province. The personality of the teacher is the moving power in the school and connects it with the community to the great advantage of both.

We have come to believe that the chief asset of a country is its men and women, hence everything which affects then as children, or as adults, is a matter of concern to the public. The playground is the laboratory of conduct for the children of the community, but to do efficient work it requires a strong leader, one who can enter into the spirit of the game, hold up a standard, the rule of the game, and guide life. With this kind of supervision the children learn to play generously, as well as justly and skillfully, to think and act quickly, and judge wisely, and ideals of co-operation so essential in real life are established. Moral control becomes vastly more than a plan to let off surplus energy. Many teachers, knowing children's need for things to play with, for companions and for a play leader, are helping in this phase of school work, but the sympathy and support of thinking parents must be added for real success. When these demands of child nature are not satisfied at school, satisfaction is sought elsewhere. Consequently children may be seen playing with balls and tools and fishing rods, and also with cigarettes or mixed drinks or chewing gum. They play out in the barn, in the vacant lot, down at the swimming pool, or loitering on the streets with different leaders, good or bad, and power to think and act grows accordingly.

On a farm in Kent thirty families joined together, put a cement dam across the stream, put up a building and had a good open-air skating rink for the young people. If it is to continue, such a centre must have the permanent backing which only an institution like the school can give.

The Belleville Women's Institute, organized in the High School a year ago to study the needs of children over twelve, has been the first to open a playground during the summer months with a supervisor in charge. Instead of the 300 who it was thought might attend, there were some 900 children registered. The story of this play centre, its organization, its enthusiasm and remarkably successful work, is one which should be fully told by its promoters. It is very significant of the changing attitude of the school to the community.

The changes brought about by different work and methods of work on the farms of to-day have helped to modify our conception of the school. The cultivation of the soil, the sowing and harvesting are done largely by machinery. Butter, cheese, and even clothes are made in the factory. Children miss the education which came from turning the raw material by different processes into the finished article, which is useful in the home. The school is the only supplement for such work. The Departments of Education and Agriculture have sought, through the special training of teachers in school gardening, domestic science, manual arts, etc., to make the school supplement home training, and better serve the people. The Department of Education offers, also, to help financially in the establishment of such work in the school. Success depends on the active interest and support of parents, as well as the efficiency of the teachers.

Products of school gardens have been shown at exhibits in different parts of Ontario. Last winter the Chatham Corn Show, which was an exceedingly good exhibit, included products from school garden workers, and admitted school boys to the judging lists, thus giving the encouragement of the leaders in the community to that branch of the school work in the counties represented.

So far in considering the relation of the school to the community, the thought has been of the children, of building up a strong fundamental nervous system with power to do anything real life demands. Until children are at least thirteen or fourteen, this should be the first consideration. But the pressing need of agricultural and industrial centres for workers makes it necessary to look to the school for labor supply. Vocation schools, then, must be put in each centre if the demand is to be met and those two of most educational value and least destructive to the nervous system supplied first, they are agricultural and domestic science schools, Such work could be given readily by means of short courses, as the domestic science course being given in Haldimand County and as agriculture is being taught by County representatives.

The majority of school buildings are quite inadequate for present day requirements of the people, therefore they stand empty usually after four o'clock and on Saturdays. At the same time many splendid Township Halls and Town Halls are being built with a concert room, which is comparatively little used. Rooms for farm clubs or Women's Institutes are idle a great part of the time. One good central building, flexible enough to adapt itself to our constantly changing ideas of education, would be much more economical and give better service, for it could then be used afternoon and evening every day in the week for old and young. The school must adapt itself to the real need of the community.

Possibly the greatest need of the schools to-day is the need for mothers, for the spirit of the mother and the work of the mother. Some time ago we were taken to see a model farm kitchen, bright, well lighted, with dust-proof cupboards and furnishings beautiful. The farmer was very proud of it, but on being asked who planned it all, hummed and hesitated, and finally said, "Oh, the woman and I, we talked it over." The man's work was done and the woman's work was done also. The result was an excellent workshop for supplying the needs of the family. Not far away stood the rural school, just like a score of other schools. Its lack was apparent, the man's work was fairly well done, but the woman's work was not done at all. The school might well be also "talked over" and made a better workshop.

What, then, shall be the relation of this democratic co-educational institution to the community? It needs to be looked upon as a department of child welfare, a department that will really study how the child grows and then supply the need of growing citizens of all ages. This Convention is a gathering of homemakers unique in Canadian life. May I suggest they would do well to appoint a child Welfare Committee composed of both mothers whose experience has come from home life and of teachers in other institutions. We have an excellent department to co-operate with the women, and a committee of this kind should help to put this important question of child culture more clearly before us.

Whatever touches the children is a matter of great public concern and deserves the best thought of both the women and men.

Question—How can we prevent the circulation of stories of demoralizing tendency among children in our schools?

Answer—There are two ways of preventing such circulation. In the first place, there must be in the home and school a cultivated taste for the best stories. In the second place, mother and father and teachers should work to prevent any demoralizing literature coming into the country.

Mr. Putnam named the following committee on "Child Welfare": Miss M. M. Hotson of Parkhill, Miss E. J. Guest of Belleville, Mrs. M. N. Norman of Toronto, Mrs. D. McTavish of Port Elgin, Mrs. Jas. Gardner of Kemble and Mr. C. J. Atkinson of Toronto.

COMMITTEE ON RESOLUTIONS.

Mrs. L. A. Hamilton, Port Credit: Your committee has drawn up a resolution which I have the honor of putting before you. It reads thus:

"Inasmuch as the Women's Institutes have for several years past been asking for systematic instruction in various branches of Home Economics through series of weekly lessons or lectures, and, inasmuch as the one experimental series now being carried on is proving an unqualified success, this Convention believes the present series should be immediately followed by several others in different parts of the Province, in order to test the value of the work in the rural districts, with a view to establishing it as a permanent system of instruction throughout the Province.

"Therefore, this Convention asks the Government's serious consideration of the extension of the work."

(Seconded by Mrs. J. Badgley and carried.)

WATER SUPPLY FOR COUNTRY AND VILLAGE HOMES.

Dr. W. T. Connell, Queen's University, Kingston.

Madam Chairman and Ladies: I am glad to have the privilege of addressing this Convention on the subject of "Water Supply" in villages and on farms. I hope you will not consider it a dry presentation of a rather wet topic, and I hope you will not be frightened when I draw out this manuscript. I have found a manuscript is the best way to keep me from going on interminably and by following it I will be able to get through a great deal quicker and will have said what I want to say.

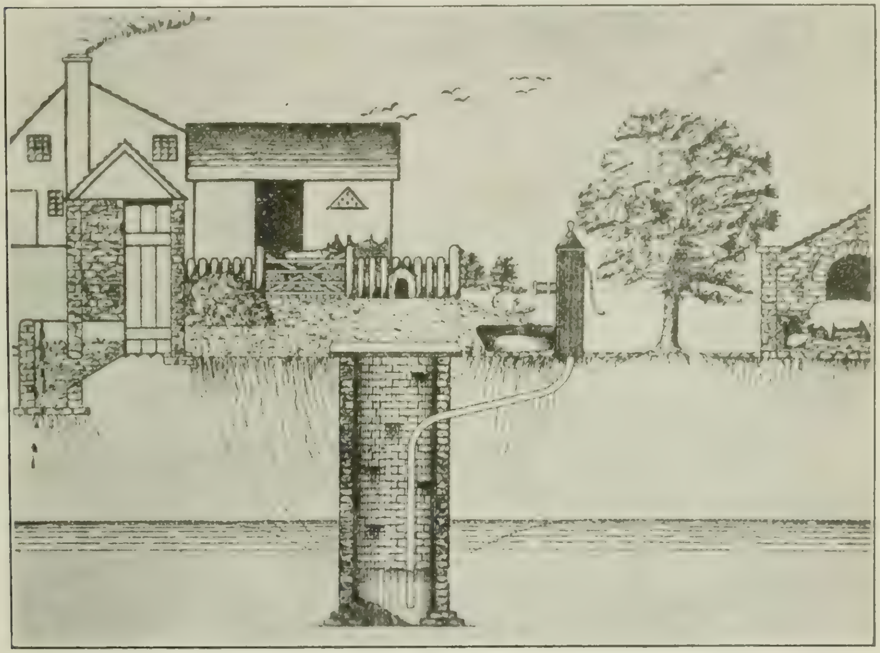
Mrs. Richards, is one of her series of books on Household Sanitation and Sanitary Chemistry, points out that air, water and food are the three essentials of healthful human life and, in developing this root idea, lays special emphasis on the necessity of pure air, safe water and proper food. In my talk to-day I am to deal with the problem of the supply of safe water for our country and village homes. You will note that I speak of safe water, not pure water, as pure water is only found in chemical laboratories, for water being an excellent solvent and finding under natural conditions many substances capable of solution or suspension is never found chemically pure. Safe water I would define as water free from such impurities as would either impair health or actually cause disease, and as such is essential not only for human race, but for animals and plants as well. Apart from use by the individual for drinking and cooking purposes, water is requisite for cleanliness of person, clothing, dwellings and surroundings, but the water used for these purposes need not be of equal standard to that required for personal use, but should, nevertheless, approximate thereto.

The problems of water supplies in country and village are of a somewhat different order from those of supplies in towns and cities. In the latter the various families are possessed of common water supplies and provide common sewer system under municipal control, while in country and village homes each family has to face and solve the water problem for itself and has to provide its own means of drainage. Thus the water supply question in the country largely hinges on the local conditions, but when these are carefully inquired into it will nearly always be found that purity of country water supplies is largely a problem of local, domestic and animal sanitation.

The ideal drinking water of most people is the cool, clear, sparkling water of a spring. I think the advertising columns of the Toronto dailies will bear out this statement by the ads of spring and mineral waters which are daily carried and which depend for their value on this basic idea. Such water may be, and often is, of as excellent quality as its physical characters would indicate, but I want to emphasize the point that good appearance and palatability do not always mean safe drinking water, as some may be of such character and yet be dangerously polluted, while waters not so good in appearance may prove better and safer waters. Still it holds true as a general rule that we can condemn a natural water that has a poor appearance or is unpalatable as not one suitable for drinking purposes. Hence the basis for the idea that all cool, clear, palatable waters are good for drinking and when we add the fact that our early settlers found all such waters so suitable we have quite sufficient basis for this doctrine. The trouble is that with the settlement of the country and poor domestic sanitation many such waters of previous excellent quality have gradually become polluted.

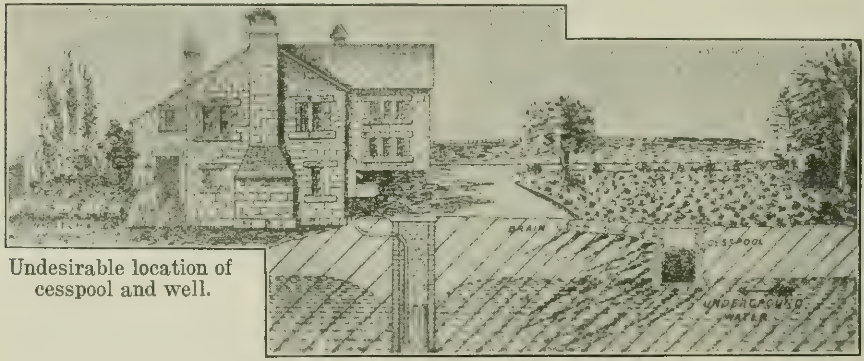
Let us look at the sources of water supply in our rural communities. We find that we depend very largely for our drinking water on the shallow or surface well; next in order comes the deep well and then the surface and deep spring; occasionally a lake or stream is the source of supply. Rain water is much employed for general cleansing purposes, but is seldom a source of drinking supply, though when collected properly and well stored it is a good, safe water, though rather unpalatable to those accustomed to our harder waters.

Considering first the surface or shallow well as to its sources of supply, character of its water and the means by which matters of dangerous character may gain entry. By a surface well is meant one which depends for its supply on the rain and melted snow waters which are absorbed by the soil and which seep down into the subsoil till held by the first impermeable stratum of rock or hardpan. Along this stratum the water oozes gradually or may even flow in small streams, flowing usually in the direction of the general dip or fall of the country. While these wells are called surface or shallow wells, such wells may, so far as actual depth is concerned, vary from four to five up to several hundred feet, all depending on depth of water retaining stratum. If this impermeable stratum makes its way to surface by a fall in the ground (gradually or abruptly) then such water flows out on surface to form a surface spring, or form a marshy spot. The source of supply here, then, is the ground water, which rises and falls with the amount of rainfall, the porosity of the soil and the dip of the ground at the point at which water bearing layer is tapped. Such a well practically constitutes a drainage basin for the ground or subsoil water of its neighborhood as distinct from the surface run-off water. The rain, in soaking into the soil from the surface, naturally carries with it in solution and suspension considerable soluble material from the air and soil, and many minute particles. Most of the particles become gradually filtered out in its passage and the dissolved matters much altered and purified as the soil has marked purifying properties,



Shallow well.

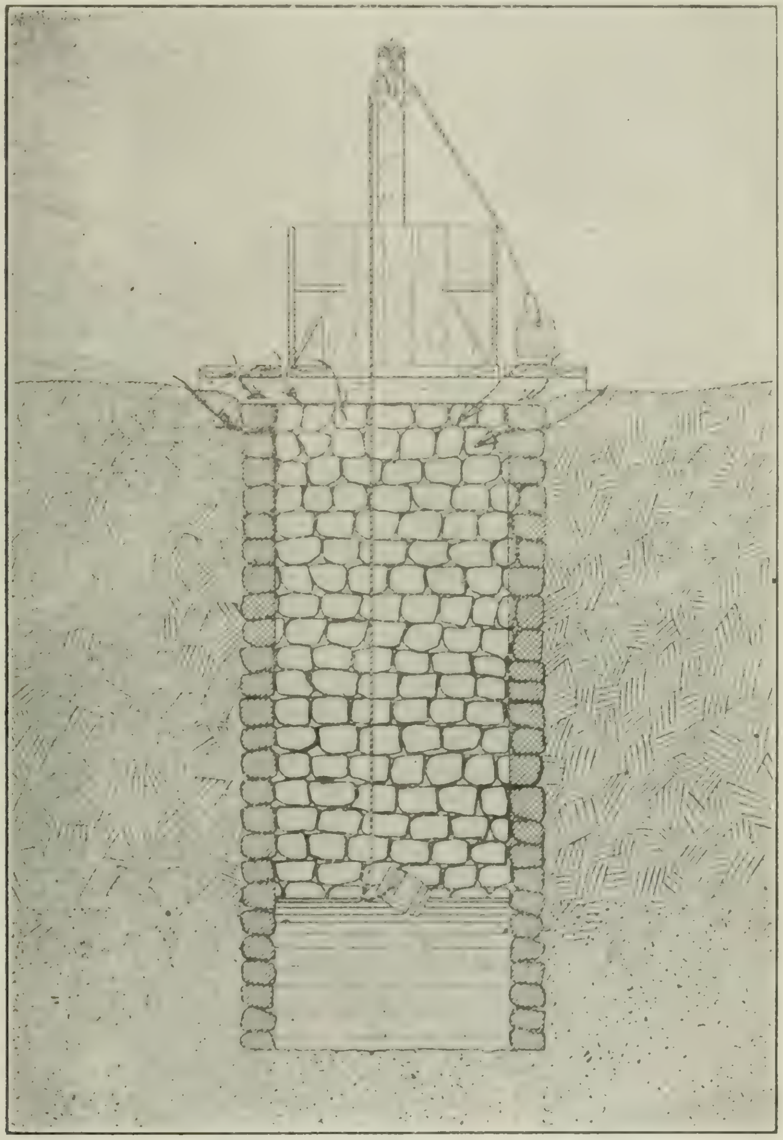
especially if not over-worked, when it becomes 'soured or choked' and unable to effect purification. The general character of the water in a surface well depends on many factors, such as character of the soil, whether sand, clay, gravel, rock, etc.; the amount of protection of well openings; the amount of water used, etc., but from the health viewpoint much more depends upon the character of soil in the drainage area of such well as regards the presence of human or animal wastes, vegetable or plant decomposing material, or of deleterious mineral substances, these being stated in order of their importance. Practically the only effects produced by ordinary mineral, or vegetable matter (undergoing decomposition) are to induce some gastro-intestinal disturbance with diarrhoea, but with the entry of animal waste, and especially human excretions, there is added the danger of production of special diseases like typhoid fever, acute dysentery, cholera etc., because the germs of these diseases are given off in the excreta, hence if gaining entry to water can be carried to others. If the human or animal wastes carried thus into water do not contain these special germs, then nothing more serious will be produced by such material than by presence of equal amounts of decomposing vegetable matter. Thus in my work I have often been told when condemning a well as containing human or animal wastes that the well was in use before I was born, that no illness had ever been traced to the water and hence there was no valid reason for condemning the well and stopping use of the water. I can only say that such people have been lucky, for once there is human waste gaining entry there is the possibility of introduction of the special disease-producing germs.



Undesirable location of cesspool and well.

Now in all works on sanitation classifying sources of water supply as to disease carrying possibilities, the surface well is classed as potentially dangerous. Why is this? Surface well water may be water as good and safe as any other natural water. When our country was younger such waters were reasonably safe, but with longer settlement and a poor or indifferent idea of house sanitation we have allowed the drainage area of many of our wells to become polluted from human or animal waste, or have been so indifferent in protection of the well opening as to allow such pollution to gain entry directly through the well mouth.

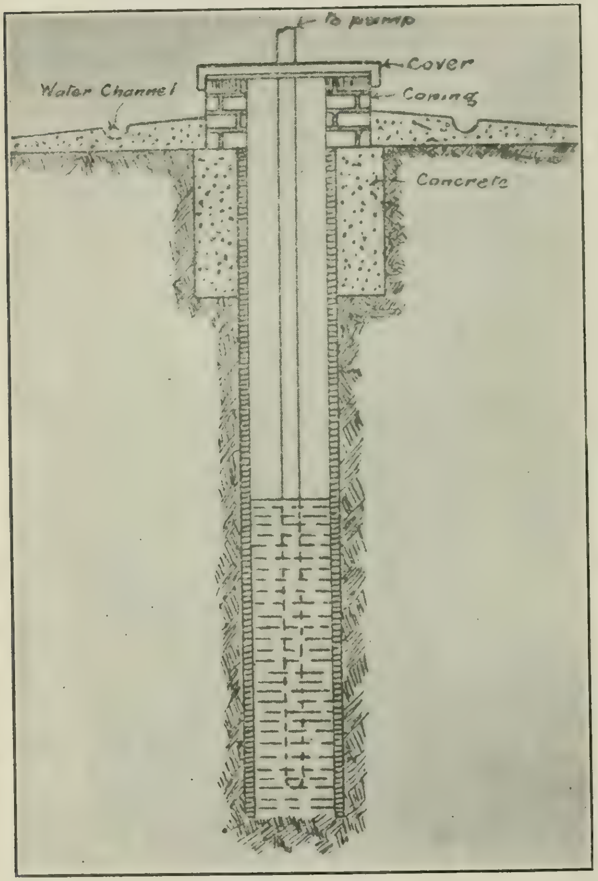
During the past few years I have had an opportunity of examination and analysis of nearly 1,000 farm, village and cheese factory water supplies and I find that on an average two-thirds of these supplies show more or less pollution with animal or human waste material—surely a very poor record. Critics may say, and to a certain extent the criticism has weight, that I only have had the suspicious wells called to my attention. Still, in several systematic investigations of the well waters of certain villages, and of cheese factory waters of certain districts, the two-third ratio of polluted samples holds good, in fact, in some cases, the pollution reaches a higher figure. Thus, in a very recent examination in one small village with 14 well waters, but three were found not polluted, i. e., nearly 80 per cent. were infected with bacteria of human or animal excreta.



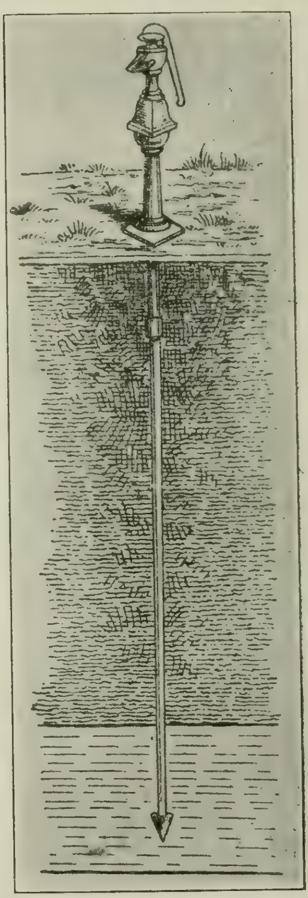
Typical unsanitary well. The leaks in the top and around the mouth of the well allow polluting matter to enter. The rough masonry within the well makes contamination through the soil an easy matter. The double bucket handled by the chain and tipped by hand cause gross contamination by the germs of typhoid fever.

Now, what are the sanitary faults one finds leading to such a percentage of polluted wells? These I will now point out, but not in order of frequency nor importance.

(a) Mouth of wells not elevated above surrounding soil, in fact in some cases actually lying lower. The result of this, that the surface run-off water makes its way directly into well, carrying with it any waste substances present on soil surface.



Well suitably protected.



Tube Well.

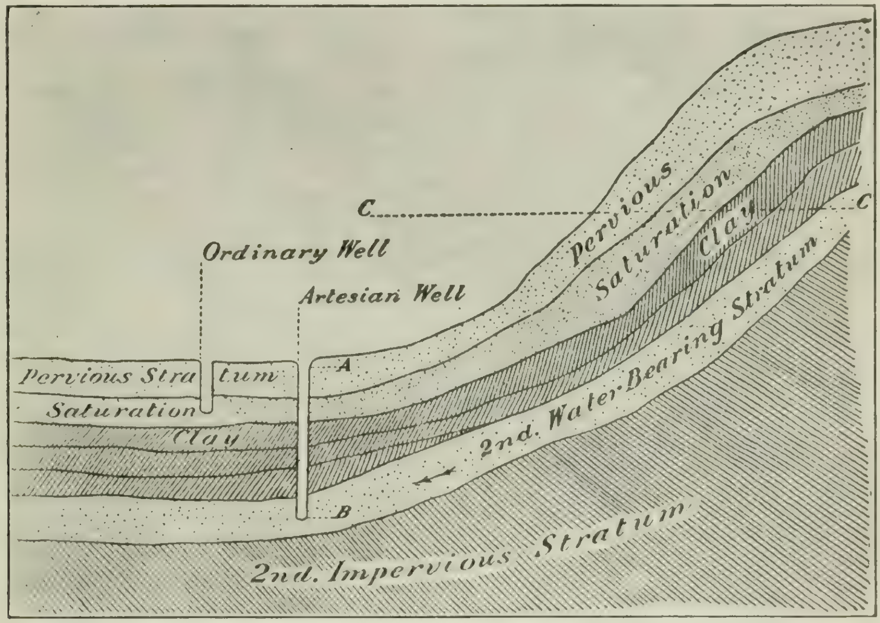
(b) Wells not properly curbed or protected for upper 4 or 5 feet. The result is practically the same as when mouth of well is not elevated, for if the upper 4 or 5 feet are not made water tight the well is an excellent drainage pit for surrounding surface water, and if soil happens to become contaminated, such contaminated material must make its way into well and with it worms, insects and small animals.

(c) Well mouth not properly covered so that dust and surface dirt, twigs, leaves, etc., can fall into the well; or water pumped up carelessly runs back in again, carrying such substances in. Through lack of covering or improper curbing frogs, mice, and even larger animals gain entry and contaminate the water. The drips from pump should always be carried outside the well curbing.

(d) Lack of cleanliness of surface soil in neighborhood of well, e. g., such things as throwing slop water near the well, allowing accumulation of manure or house wastes nearby. It is remarkable how careless many are in these points and also such as watering animals right over or very near well mouth and allowing their droppings to lie about.

(e) Wells may be situated too near to drains or privies that leak owing to improper construction, or too near stables, manure piles or pig pens, so that the soakage from these, gradually seeping through soil, makes its way into well and thus contaminates the water.

In villages the most danger of pollution is usually from drains and privies, both of which are often improperly constructed and frequently much neglected, so that seepage from them to neighboring wells is but a matter of time, as the accumulating decomposing matter gradually sours or chokes the soil and checks its purifying action.

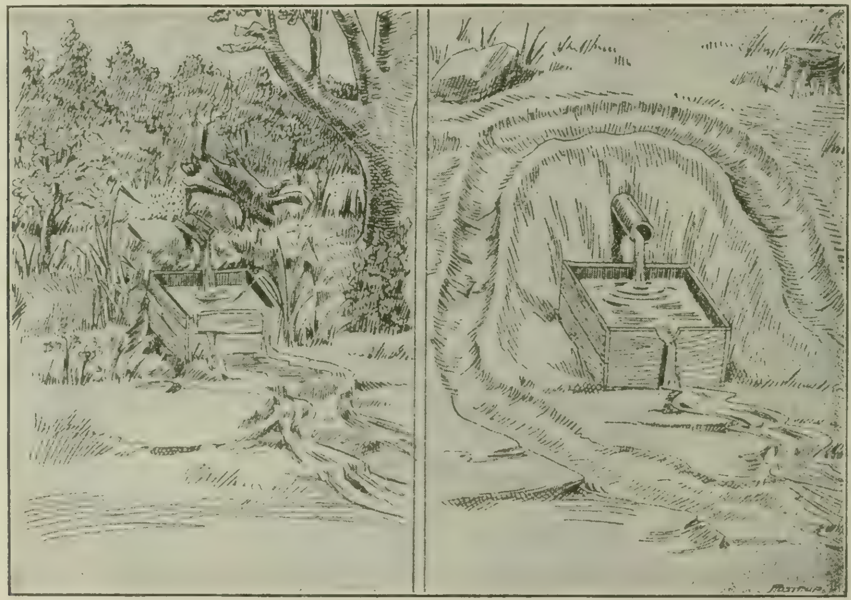


Geological formation favorable to the obtaining of water by means of artesian wells.

In cheese factories and creameries the drainage is most common source of trouble to the water supply.

Thus taking the average surface well, the main sources of contamination that I have found have been no elevation of mouth, lack of curbing, improper covering and accumulation of waste material on surface soil within 20 or 30 feet of well opening, all tending towards the same end, viz., the direct or indirect entrance either through the top or upper few feet of well pit of the surface contaminated water or contamination of drainage area of a well.

I have spent considerable time on the surface well because its troubles and their causes are practically those of the other sources of water supply, so that the details of these troubles need not be again gone into. Considering next the deep well as source of supply. A deep well is one which does not depend for its supply on the ground water of the immediate locality of the well, but gets its supply from the water which lies imprisoned beneath one or more of the surface impermeable strata. The origin of these waters may be only several hundred feet or yards from the source at which tapped, or it may come from miles away, and always from higher ground than at the point at which tapped. If there be a heavy flow of water and source be considerably above the ground level at site of well, then a flowing or artesian well may result. In Ontario nearly all deep well waters are excellent waters. In some sections of country they are apt to be rather heavily mineralized or too hard for use other than for drinking or cooking, as owing to their hardness they require the use of too much soap for general cleaning purposes. In most parts of the country deep wells are drilled wells, because the ground water of the surface penetrates to the rock. Deep well waters then, as a rule, are good waters, yet in my examination and analysis I find I have to condemn a fair number of samples from such wells. What is the trouble? Practically the same as in surface wells, i. e., lack of protection of the well itself so that contaminated ground water enters. What is the use of deepening or drilling a well if the drill hole is to be simply a drainage pit for the surface water. Such a well ought to be tightly curbed down to first impermeable stratum of rock or hard pan. This keeps out the upper ground and surface water and ensures the drawing of the deeper water. In the vast majority of the cases which I have investigated where contamination has occurred the trouble has been due to entrance of surface run of water or the surface well water and by taking such steps as were necessary to keep this out the trouble has ceased. Occasionally a case is met with, especially in fissured

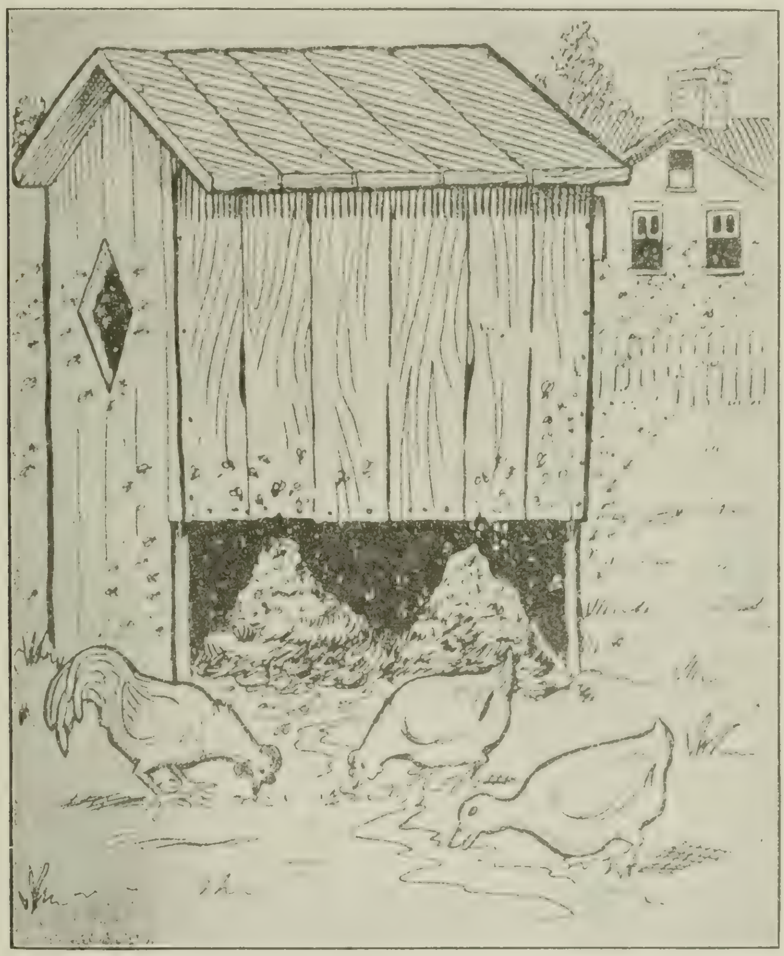


A dangerous spring. Note how the surface washing from the hill may enter the unprotected box and pollute the water.

A sanitary spring properly boxed. with a surrounding ditch to drain the surface washing from above. Such a spring is generally safe.

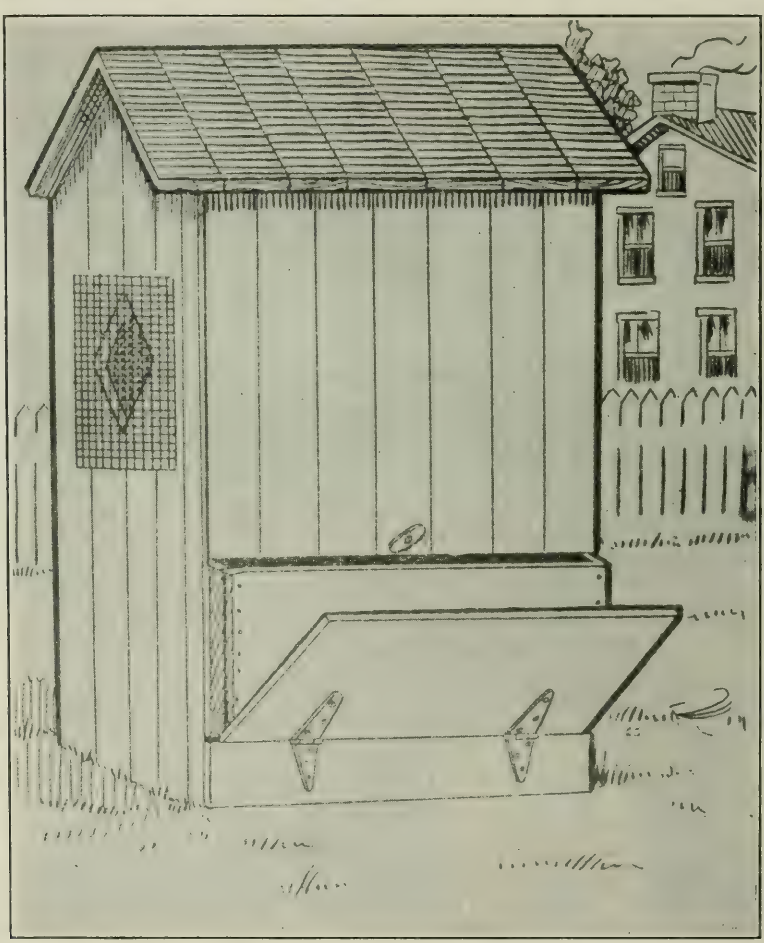
rocks such as found particularly in limestone regions where contamination gains entry to well through some fissure which receives the contaminating drainage matter. Similar trouble at times occurs in deep wells driven in certain gravels, but is not at all common in my experience, though, perhaps, more common in wells passing into the deeper gravels of parts of Western Ontario.

Springs are but the cropping out of the surface ground water or of the deep imprisoned water constituting either surface or deep springs. Their waters are the same as those of the surface or deep wells and are subject to same troubles.



The type too often found on farms.

Improper protection of the spring, so that surface waters gain free access, is decidedly the most common source of contamination. Springs, whose waters are employed for domestic use, should be protected from surface washings by curbing and proper drainage of any higher neighboring ground and should be fenced off or enclosed so as to keep out animals. As I have said before, the water from a deep spring, cold, clear, and sparkling, as it usually is, is the ideal drinking water of the average man—and an ideal water it may be, and usually would be, if we took those simple precautions of protecting the immediate surroundings and the drainage area from pollution. That is, we must insist upon cleanliness of all soils from which seepage may occur into our wells and springs. The problem of clean rural water supplies can only be solved by attention to general cleanliness about the dwelling and about the well area. Proper elevation of well mouth, proper curbing and covering, cleanliness of soil about well are important factors. As important from the disease-carrying possibilities are the proper care of slop water of houses, the provision of sanitary privies, proper disposal of house wastes, prevention of contamination of drainage area of well from manure piles and stables.



The farm closet as it should be.

As I have already pointed out, pollution of well water may be present without seeming injury to health, especially of those accustomed to use such water, but trouble, especially diarrhoeal outbreaks, are very apt to occur if such water is used by those not accustomed to same. Actual disease, like typhoid, dysentery and cholera, only occurs if the germs of these diseases gain entry. These diseases do not develop *de nova,* for if they did our rural and village population would, with conditions which exist, have been swept away.

Surely, then, it is time we, in the Province of Ontario, awakened to the fact that so many of us in the villages and farm districts are drinking water containing bacteria derived from intestinal canals of man or animals, a diluted excreta. It is time, then, we took those necessary and not expensive steps which will ensure a cleaner supply, an absence of such bacteria. The good results will soon repay all expenditure in the conservation of health and the prevention of water-carried disease.

The Chairman: Can you tell that the water is bad only by bacterial examination?

Dr. Connell: The only answer I can make is that if you find the water is altered in character from what it was previously, it is well to be suspicious that some trouble has arisen and to have an analysis made.

The Provincial Board of Health of this Province will examine any water free of cost that is sent to the laboratories at Kingston and Toronto. Besides a bacteriological analysis, there is a chemical analysis which does not point out quite so readily where well water is polluted, as does the bacteriological analysis.

Q. Is it bad to keep chickens near the well?

Dr. Connell: Yes, it is just as bad as keeping other animals in the vicinity.

Meeting adjourned.

EVENING SESSION.

The evening session of Thursday was held in Convocation Hall, Miss M. U. Watson of McDonald Institute, Guelph, presiding.

A WOMAN'S VIEW OF LIFE.

Mrs. Horace W. Parsons.

Madam Chairman, Ladies and Gentlemen:

I want to touch in a very simple and brief manner some of the phases of woman and her responsibilities within her home. These last days we have been endeavouring, in a united way, to raise the standard higher for home and country; and yet, again, we would emphasize the fact that, as never in the past, Canada needs good homes and the world needs good mothers, if we are going to achieve anything and cry Excelsior. We need more joy in our home life. We are so prone to look upon the four walls that encircle us as a place to eat and sleep in; and the higher purpose is lost sight of, that it should be the spot on earth above all others where love and joy dwell and where peace is to be found, and where the business cares may be laid aside. The most comfortable home is one to be lived in, not looked at or partly shut up. This question of joy in the home is of vital importance to us all, especially to those who are mothers. The child and its education loom very largely on the horizon to-day, the good mothers throughout Ontario are studying out the problems of wider education as a means to better life equipment, and the child and its needs are the subject matter of many monthly magazines; so let us not overlook the vast importance of home environment. Happiness and goodness go hand in hand, as a rule. The normal child should be bubbling over with joy and we should provide some legitimate outlet for all the exuberance of spirits that the normal child should have. Keep birthdays and special anniversaries in some special manner; they not only provide the joy of the passing hour, but they serve as milestones of happy, remembered days; and these memories may later serve as an incentive to better things among the world's varied temptations. When it is so easy to bring joyous laughter by simple means, is it not well worth while to make the effort along this line and because the time is so short that the young birds are in the home nest, and they are gone before we realize their wings are strong enough to carry them. Be your children's companions, keep young with them, keep sweet if you can, and do not be too dignified to thoroughly enjoy as well as to provide their juvenile pleasures. Let us not be either afraid or ashamed to shew our affection at home. We are all so apt to kill the loving appreciative word, in case it should be taken for weakness, and never realize our mistakes until it is too late to rectify them.

Oh, what silences we keep year after year,
With those who are most near to us and dear.
We speak of myriad things, yet seldom say
The full sweet word that lies beneath the common ground of common speech.
Then out of reach and out of life they go,
Those dear familiar friends who loved us so,
And sitting in the silence they have left,
Alone, with loneliness and sore bereft.
We think with vain regret of some kind word that once we might have said
And they have heard.

I do not purpose to delay long with the young child problem, for so many of us heard Mrs. Norman's words of burning earnestness this morning. I shall only touch the ground lightly. I am a plain woman, speaking to a practical audience, and the time has come when we must treat this subject in a plain way. The modern mother is very slow to learn that she must teach her child the life truths that tell of the origin of its own little life. Parents have chosen to taboo this subject and cover it up with fiction and falsehood, and have tried to silence the enquiring mind with suggestions that it is vulgar and impure to ask such questions. This is a question to be faced, and not ignored. If we can see only wrong in the subject, the wrong must be in us, for it surely never was in the Almighty's plan. It is absolutely impossible to keep your child ignorant of the meaning of life or its great fundamental principles. Is it a matter of such great difficulty, when you realize that all the world of nature everywhere is telling the same story of God's provision for the continuance and replacing of life? Then the only possibe thing to do is to be your child's reverent teacher yourself, and to make it feel that the subject is a sacred one, to be sacredly kept from the conversation of the play hour. Your child will then keep her innocence, and it will not be confounded with ignorance. How many a tale of shame and life-long sorrow would never have been written if the warning and instructing word had been sounded. It is not fair to send your child even into the dust of the schoolroom without having fortified it against possible contamination. You wrong the Divine in the child. It is not fair to send out either a boy or girl among unknown temptations, without pointing out the danger posts. The best mothers are following these plans to-day, and it is only the Canada of to-morrow that will testify to the results.

The treating and the teaching of the child I would carry on in a larger sense with the growing girls and boys who are in and about the home. They, too, need lots of healthful recreation, and it is the right of all young people to have the opportunity of estimating and judging life and their fellow-beings from a common-sense standpoint. They should have opportunities of learning of each other and understanding each other's viewpoint. If young people can enjoy one another's society in a rationally free way they will not be so apt to choose unwisely in their matrimonial ventures. I consider it a mother's privilege to provide simple evening enjoyments and to make young people's interests her interests and to take pleasure out of their pleasures. Home should never be too fine a place to be used. If your heart hungers for a home of precious household gods, then postpone their advent till such time when the walls and halls do not resound to the merry, happy, fun-making voices. Your carpets and your upholstered chairs are more easily replaced than your child's soul, which may be led into sin's byways because home was not congenial. The time when womanhood and girlhood meet is a beautiful time in your daughter's life when you should be her very near and dear companion, instead of drifting apart, as so many are apt to do. She needs your understanding sympathy and your confidence, and she needs too the strength of your experience. Yet even among good Institute members one finds that, when the young daughter is attracting the attentions of some admirer, she is constantly subjected to the ridicule and teasing insinuations of the whole family. I think it lowers her and you too. The sacred experience of this early love that stirs her young heart is entitled to respect, at least; you, by your careless usage, rub off the bloom, and under such treatment you cannot expect to get your daughter's fullest confidence.

We also assume a peculiar attitude towards the young man who comes to our homes on matrimony intent. We make him the subject of criticism, not always kindly, which does not tend to put him more at ease. Can you not let him feel that you want to make friends with him? He has neither time nor inclination to court you and win your approval, he has too much else at stake. Then your cue is to win him and thus pave the way for future agreeable relationships. Mothers be wise.

To the girls I would say—do not be selfishly wrapped in your own happiness, others like to enjoy it too. Do not be a flirt and try to make your lover jealous, for it is unworthy and unwomanly and he may be deceived and come to think you really prefer the other man. There's many a slip between the half-hoop of diamonds and the plain gold band. Do not think of trusting your happiness to a man of known vices: it only means shipwreck. If a man has not strength of character to reform, you had better not undertake the task. Never marry a man who wants to belittle you and yours. Never cheapen yourself to any man. There is no man worth it. Stand on your honour: do not allow any man to take any kind of familiarity with you, and he will respect you all the more for it. No man wants a girl who is not worth the winning, so let yourselves be won in the right way. Now we will leave these young people to prove how true the poet's words were when he wrote: "There's nothing half so sweet in life as love's young dream," Deeper joys, more mature joys, may come later on, but, as far as the sweetness is concerned, you have it in that engagement period. Do not hurry through it, sojourn in it as a veritable land of enchantment, be happy in it, and yet not too selfishly happy, because we old folks like to enjoy some of it too.

Thus leaving them, we will turn aside to consider three points that go to make up the problems that may be viewed in connection with the subject of woman's life. The first picture of the side gallery is not a pleasant one, but we must deal with the bitter as with the sweet.

In every community there is some unfortunate girl who has been led to do the thing that is wrong, and we women, one and all, condemn her, and turn our backs upon her. What earthly business have we so to judge her? If we have not been tempted, how do we know what we would have done if we had? If we have met temptation and resisted it, was it all due to our own superior strength, or did we rather owe some of it to the blood of our ancestors and to their upright walk through life, and mayhap our own faith was pinned to higher things which made it impossible for us to sin in this way: then by what right do we presume to judge? Is it not a more Christlike thing to help her to regain something of her lost womanhood and to take her place again among her fellow beings? We deplore there is a double standard of morality among us, and yet do all we can to further it by meting out all the ignominy and disgrace upon the woman, while we receive the man, who was her partner in guilt and probably the greater sinner, as a friend and social equal.

If Canada is not to be stained with the black plague of nameless sins, we, the mothers of to-day, must teach our boys now that what is wrong for the girl is wrong for him, and that what is counted wrong for a woman is just as wrong for a man. If in our day and generation, the decent men and women of all the so-called civilized nations of the world would adopt the higher standard of right and wrong, the world would very soon set things right. This is a matter we have very largely in our own hands. Surely, we Institute members, who are 20,000 strong can do something towards ushering in a truer, fairer condition of affairs.

A second matter to be talked over in a corner is our relations-in-law and what to do with them. Here we come to a difficulty. I quite allow that they sometimes do help to mar the married happiness of many people, but there are two sides to most questions and there are two sides to this. Not long ago I heard someone say, "There's a lucky girl, she's engaged to a man who hasn't a relation in the world." I rather question that. It may be true that they will be free from the frank criticism and fault-finding that relations think is their duty to give, but they also miss the help and advice they might have bestowed. It may not be such an advantage as you think to marry that solitary man, or for a man to wed a girl who is all alone in the world. They are both very apt to have an undue sense of their own importance, while a miscellaneous horde of relations rubs lots of the corners off and makes them easier to live with. A girl is handicapped at the start, if she has no opportunity of meeting her fiance among his own people. If she finds at his home a little lady who is "only mother," or some girls whose opinion does not matter, because they are just "the girls," his sisters, she had better review the situation and think again before she throws in her lot with him, for surely the day will come when she too will be added to the number of those "only" ones who don't count. No girl with brothers ever thinks of putting the man she marries on a pedestal, for she has been used to seeing men on far from their best behaviour and company manners, and so a man who has been brought up with people of the opposite sex knows things too. He knows that all the little mean things said about girls are not true, and he has probably learned that a woman rightly treated is a splendid friend and comrade. So even our relations help. The father-in-law may be looked upon as a "regular old dear" and the brothers-in-law may be first class companions, but the poor abused mother-in-law, she is the one to be reckoned with. Perhaps she is a little severe in her judgments sometimes, but it is really because she wants the young people to hew a very clear path. She knows there is lots of trouble of one kind and another, and life has taught her how easy it is to make mistakes. So her seeming interference is misjudged, and sometimes we will allow she is a little trying, but wait until she is transformed into a devoted grandmother and all will be well. Perhaps one of the greatest mistakes a woman can make is to be jealous of a man's love for his mother. It is not the love he gives his wife, and, generally speaking, the most devoted son makes the best husband. It is the wisest and only policy to get along comfortably with one's relations-in-law, and to remember that your faults are as objectionable to them as theirs are to you.

Another question that we may touch upon is second marriage. Many people argue that second marriage cannot succeed. I cannot see why. We all know cases where they have succeeded. If experience counts for anything, surely a widower should know better how to treat a woman than a bachelor, and a widow has learned that a man cannot live on love and sweet nothings and badly cooked dinners. She knows that, if his creature comforts are well looked after, he is usually a very reasonable human. She knows exactly what he will say when he smashes his collar button, she can sit calmly serene at the breakfast table and listen to his complaints about the coffee, bacon, and other things. This would reduce a young bride to distraction, but the widow knows it is only a passing cloud—a storm in a teacup. Perhaps if women would only realize that a little more backbone and a little less wishbone were necessary to domestic felicity, success would attend their efforts at home-making. As a rule, a widower is in a better financial position to undertake the burdens of housekeeping—he is just a little bit up on Easy Street and has a good home to offer a wife, and I think he too knows that there is no companion that is really as comfortable to get on with as a woman. There really is no reason why he cannot have had a deep devotion for one wife and be perfectly loyal to her memory, and yet develop a real and true affection for a second wife and be just as loyal to her. This is not inconstancy, and it does seem such a pity when you hear these bereaved ones putting up the plea that they need a "companion," "a housekeeper," someone to look after the children." Why not own up to the fact that they have again found love in the light of another's eyes? Life holds so much of sorrow and pain for us all, so let us grasp all the bright bits and count up the blessings that come to us rather than the sorrows.

Now I am going back to that young couple and usher them into their new home in the strains of "The Voice that Breathed o'er Eden." Girls, it is a mistake to run away and get married. Your parents have loved you too well, they have sacrificed too much for you. Every girl should be married in her home church if possible, certainly from her own home, and she should go out from that home with her father's and mother's blessing. She may have heard on every side how this one and that one have not been happy, but she enters that new home with the fixed purpose of showing others how possible it is to be joyously happy. Most of us start that way, but there is so much frailty in humanity that we do not manage to live up to our own high standards very long. Misunderstandings come in spite of our best efforts. The only advice I can give is—put off open misunderstandings as long as possible, and then you will in all probability have fewer to contend with. They usually arise from very little things, you want to assert your authority, and let him see you have a will of your own, or perhaps it is a question of finance that is a stumbling block. This, however, is not so much to be feared to-day, for young girls are being so differently trained, and a good business education is the rule and not the exception. Even so, it is well for young people to look carefully to their expenditure, for it is easier to get behind than to catch up again.

In a slack season every little while papers and magazines open up columns for the discussion of the subject "Is Marriage a Failure?" and we are treated to all sorts of advice proving that it is so. All I can say is, I have been trying it for twenty years and I have not found it a failure. Marriage is very largely what you make it. If you are going to take all your bad temper, sulkiness, and selfishness into your new home, what can you expect but that it is going to be a failure? The resultant good or ill depends largely on the woman. You may think I put too much responsibility on her shoulders, but I do not ignore the man's share; he should uphold his wife, he should stand by and be ready with advice and counsel and should help to make that home what an ideal home shoud be; but there is no getting away from the fact that a woman may be queen of her home and rule there if she is wise enough to do so.

There is just one other point before closing, it is the question of the little child in that new home. To-day we are living in a state of great national peril. Women everywhere are refusing to become mothers. They are using every means known to science, and every drug and device on the market to prevent motherhood. I will go further and say that many married men and women in Ontario are living lives that are nothing short of a sort of legalized prostitution. Can we expect to retain our self-respect and our husband's respect if that is the kind of life you are living? If we believe at all that we are the temples of the Living God, then dare we live in that way and take the law into our own hands? I want to know what the mothers have taught their girls, if they go out from their homes to build up new homes on such principles, and what have the father's examples been worth, if their sons can acquiesce in such conditions! Let it not be said of us women of the Twentieth Century that we are too cowardly, too selfish, to want to do our duty by our country. Let us raise the standard here and teach the girls that there is nothing so glorious and so beautiful in the whole world as motherhood. There are those who will say, in this strenuous age, families are a luxury, we cannot afford them. I know it keeps you poor, but it has its compensations, your children's love repays you. (Applause.) It repays you in a dozen ways because you have all that glory and you feel, too, that you have taken your part in life and done your part for your God and for your country, and that it has been worth it:

Behind our life the Weaver stands,
And works His wondrous will.
We leave it in His all wise hands,
And trust His perfect skill.
Should mystery enshroud His plan,
And our short sight be dim;
We will not try the whole to scan,
We'll leave each thread to Him..

We Canadians are citizens of the finest nation in the world. We have possibilities that no nation ever had before, we have a future of greater promise than the world has ever seen. Then let us live up to it. Let us be wise as women and as mothers, as leaders in whatever work we undertake, and let us have a glorious part in the making of the history of this great country and feel to the very depths of our being:

"O, Canada! O, Canada! We stand on guard for thee."

MRS. HAMILTON: I represent the Port Credit branch. We are very young indeed, having been in existence two years only. We have had a great deal of encouragement during this convention for our future work.

We have laid particular stress on civic improvement and we hope that in the future we shall show great results from the work we have done. We have had competition in gardening and improvement around small lots and houses. This work was taken up enthusiastically by members of the Institute and others and we really saw the most extraordinary metamorphosis in one season. Through the kindness of ladies and gentlemen in Toronto, prizes were given for this competition. This year we gave prizes for the best kept residences in Port Credit. This covered almost every worker's house. We had good results from that.

In connection with the matter of gardening, we had a very delightful lecture from Mr. Cameron who inspired everyone in the meeting to go on and do more for the betterment and improvement of their places. One little girl of nine who was at the meeting went straight home and planted a little bush on the place, and if a child will do that, what will she do later on!

In connection with our ordinary monthly meetings during the summer, we have a little flower show. Any flowers that are in season are shown and we have had some remarkably good shows. Mr. Cameron frequently comes to judge at our show and gives an explanation of the awards.

We have also had a dental inspection in the school. There are so many of our members who wish to have their children's teeth inspected. Hard working women cannot leave the farm even to go a short distance to Toronto to take their children in for treatment week after week. We all know what it means to go to a dentist to be treated for fifteen minutes, but, if you have to travel fifteen or twenty miles and pay the fare for yourself and child each time, it is rather difficult. The consequence is that our children are not properly attended to. However, we hope to get better co-operation another year and we hope the teachers will meet us and help us so that every child will be protected.

We have also had little competitions in art, including needle work, wood carving and china painting. This has been very well received and our young women have shown very beautiful work. I have always been impressed since coming to Canada with the exquisite care taken in detail work by Canadian women. We do not need special instruction because the women do such beautiful work here. Our designing needs improvement. We have great opportunities at the Toronto Industrial Exhibition where we have had magnificent examples of good art and design. (Applause.)

MRS. F. J. ROWLAND, Niagara-on-the-Lake: I will have to tell you of all we are going to do at Niagara-on-the-Lake and not of what we have done. Our Institute was only organized during the past summer and that is not a good time for an organization in such a place as Niagara-on-the-Lake. We are too busy in the summer to think of such things. However, we have organized and we have acquired enthusiasm. The ladies are very enthusiastic and we have already started work along the regular lines. At first the ladies thought they did not want an Institute and then they thought, if it could be organized, it would be a good thing. Now they are very glad they have an Institute and they are doing their best to make it grow.

We have a regular question box on our table and questions are put in and answered. At first it was some trouble to get the members to take part. We begin in alphabetical order, and each member brings to the meeting some thought they can glean from anywhere—something that will help us, something to think about, something beautiful if possible.

We have already had Dr. MacMurchy and we had 220 ladies out to hear her, which is something wonderful for Niagara in the summer time. We also have on our programme a doctor of our town who is instructing us in what to do in cases of emergency. Then our banker is telling us what women should know about banking.

I do not think I have anything new to tell you except that we are progressing and happy in the work, and we feel it is going to be a success and, when we feel that way, we are quite sure it will be a great success.

The Chairman: With a start like that, it is bound to be a success.

We have come to the final number on our programme. It feels very nice to a Guelph person to ask another Guelph person to take part and I have great pleasure in asking Mr. Harris of the Humane Society to address the meeting.

OUR DUMB ANIMALS.

Mr. P. C. Laverton Harris, Managing Director of The Toronto Humane Society.

Madam Chairman, Ladies and Gentlemen: I will have to speak very rapidly to-night in order to give you an understanding of the work of the Humane Society. Its work is very closely identified with home life in all its aspects.

So much has been touched upon to-night by Mrs. Parsons, in her address, which leads up to the subject of our Dumb Animals, that I may possibly include many things of which she has spoken.

I wish to say, by way of introduction, that "The Humane Society" is simply another form for "The Society for the Prevention of Cruelty to Animals," and it is also sometimes called "The Society for the Prevention of Cruelty." The question of dealing with children is included, and the Children's Aid Society is linked with the Society for the Prevention of Cruelty to Animals and is an offshoot of our own Toronto Society.

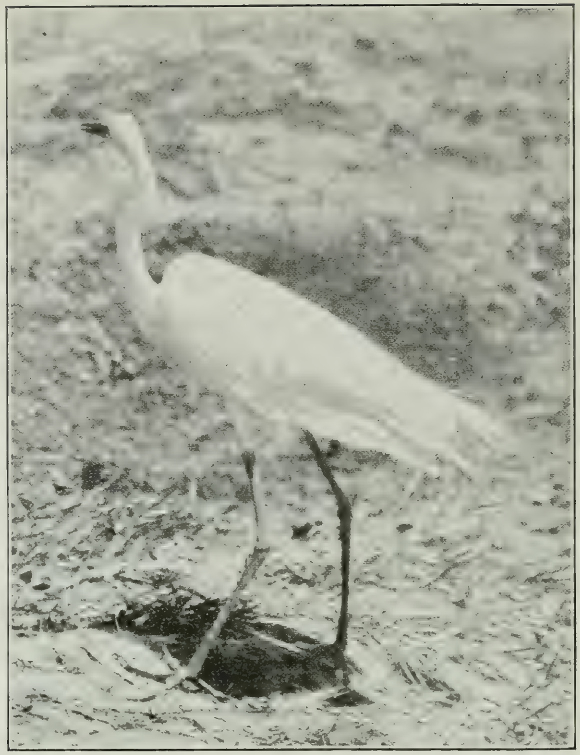
The Toronto Society was incorporated in 1887. It has no Provincial aspect whatever, except that we undertake, when appeals are made to us from different parts of the Province, to look into cases of alleged cruelty, and, if they are found to be as alleged, to bring these cases before the Courts. I wish, however, to point out that the Society exists for the *Prevention* of cruelty and not, primarily, for the prosecution of offenders. There are features connected with it which appeal to the home life. *Kindness* should be taught; kindness to the dumb creatures around will produce kindness in the home. There is no doubt of that, absolutely no doubt of it, and so, from the very earliest training, the child should be taught *kindness*.

It is a simple matter for father to buy a little whip and give it to the boy and teach the boy to whip mother. Mother jumps as if in pain from the whip lash, but in the very doing of that, you begin to teach that little child, who cannot understand what a horse is, that the whip should be applied to cause pain, or make things lively, and when he grows up he will apply it to the horse. It is very easy indeed to give a kitten to a child and teach that child that it is not of much moment. Going down through the Ward last summer, I came across one of our Jewish citizens, a Jewish woman, who was sitting in a rocking chair on the sidewalk, and her two little children were sitting on the step and each had a little black kitten. Each one seemed to be trying to choke the little kitten to death. I happened to have some of our Jewish leaflets in my pocket, and spoke to the woman, as well as I could in English, handing her one of these leaflets. She was very much interested at once, seeing that I handed her something in her own language. I knew sufficient of the Hebrew to be able to point out just where the clause was that had to deal with cruelty of the special form, and she saw at a glance what was intended and immediately took the kitten away, and began to talk to the children about how the kitten should be treated. It is very easy to give a boy a little pup and not guard the pup's interest from the child. When the child grows to boyhood, if he kicks his dog, you cannot expect anything else. We might talk for half an hour on that point. The *prevention of cruelty* is the main thing —kindness in the home and in the school.

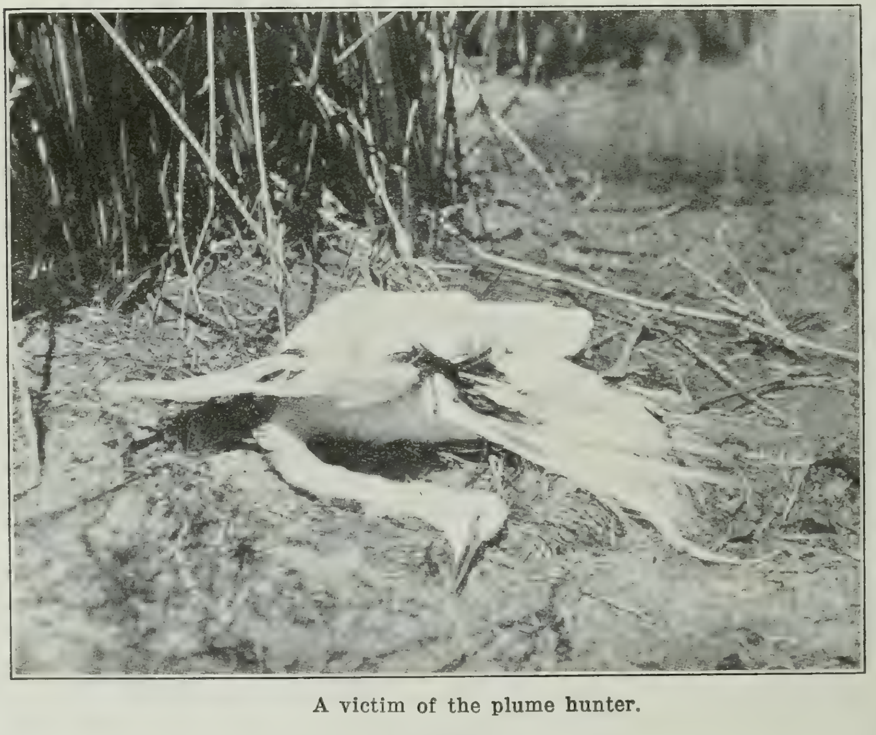
Animal Friendship. Ready for a run.

A great deal of attention is being paid to-day to Nature Study. Nature study is developed from the scientific standpoint—the use of animals small and large—but too frequently the moral aspect is left out of the Nature Study, what we owe to the animal from the standpoint of the moral obligation, caring for the animal, treating it as it should be treated, watching after its interests, instead of taking everything out of the animal for our interest and giving nothing in return.

I am not going to talk very much to-night, because I want the pictures to



Egret seeking food for young.



A victim of the plume hunter.

speak more forcefully than I can. Some of the pictures I am going to put upon the canvas are taken from a lecture which I give on "The Influence of the Beautiful and Perfect as opposed to the Cruel and Crude." I believe in showing beautiful pictures rather than those which are imperfect and cruel. I am going to give you many of these pictures to-night, with a few examples of the cruel.

We are being appealed to from different parts of the Province. Not very long ago we had an appeal from Bruce Mines, in reference to a case there where it was reported that a farmer took his pick-axe and drove into his horse and left the animal in his stable in that fearfully painful condition. The next day neighbors took the animal out and shot it. The man was brought up before a Magistrate, and, from the standpoint of the fine, it was certainly very, very small, being only $12, including the costs. I had no report of the reason why the fine was so small. It may have been some local reason. I do not know, but it was an extreme case of cruelty.

These cases come to us from different parts of the Province, and we undertake to deal with them, if it is at all possible for us to do so.

Whenever it is possible, I shall be only too glad to come and give lectures in respect to the work, although I have my hands pretty full here in Toronto. I will come and lecture and, these lectures being of an educational value, we make no large charge, generally an offering, provided the offering is sufficient to pay our expenses, whatever is over and above that being devoted to the extension of the work. We receive no support outside the City of Toronto and we depend upon voluntary subscriptions for all the work we do, with the exception of $100 which the City of Toronto gives us.

I would like to call your attention to the reports which have been distributed and which I would be very glad to have you take home and carefully peruse.

(Mr. Harris then exhibited on the screen a number of very beautiful and interesting pictures, which were very much appreciated and applauded by the audience.)

THE CHAIRMAN: I am quite sure that Mr. Harris will be given many opportunities in the future to spread his gospel through Ontario, and I am quite sure we regret exceedingly that his time was curtailed.

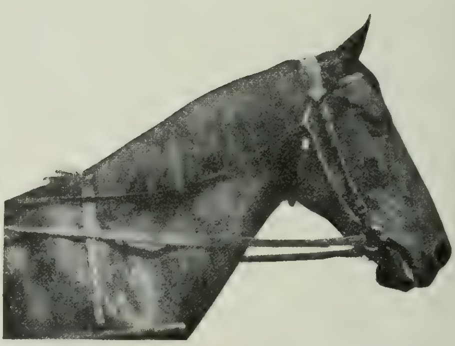
DR. EDNA GUEST: I wish to compliment the Superintendent on the success of the convention. Although we all know that a great deal of the success has been due to those who have so ably taken part, we also all know, especially those who have ever gotten up a convention, that there is somebody at the head that turns the wheels. I met Mr. Putnam at the Horticultural Exhibition this afternoon, and he said, "I was discouraged before the Convention and I wondered if we were going to have a good time. I have wondered if some of the members would not like a lady superintendent for our Institute." I think every member here would be as much taken off their feet as I, if that were done. I do not know exactly what reply was made, but I suggested that we might possibly use some lady supervisors. I think all the members will agree with me when I say that we all think we have the only superintendent and, before drawing this meeting to a close, I would like to make this official; let us give a hearty clap of hands for the Superintendent. (Tremendous applause.)

The chairman called upon Mr. Putnam to reply.

MR. PUTNAM: I hardly know what to say under the circumstances. When Miss Watson asked me a few minutes ago if there was anything I wished to say

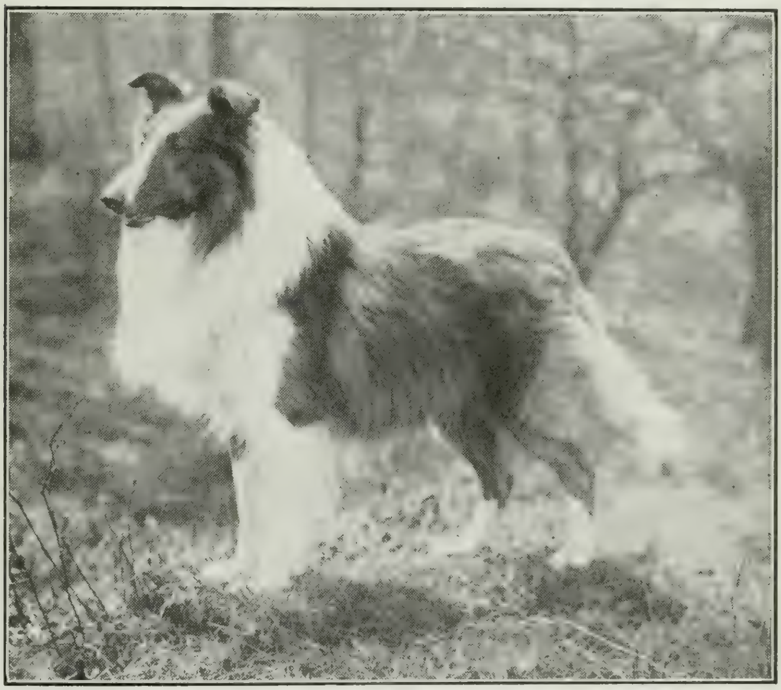
Animal friendship. "On guard."

A proud mother.



The right way for the check rein.

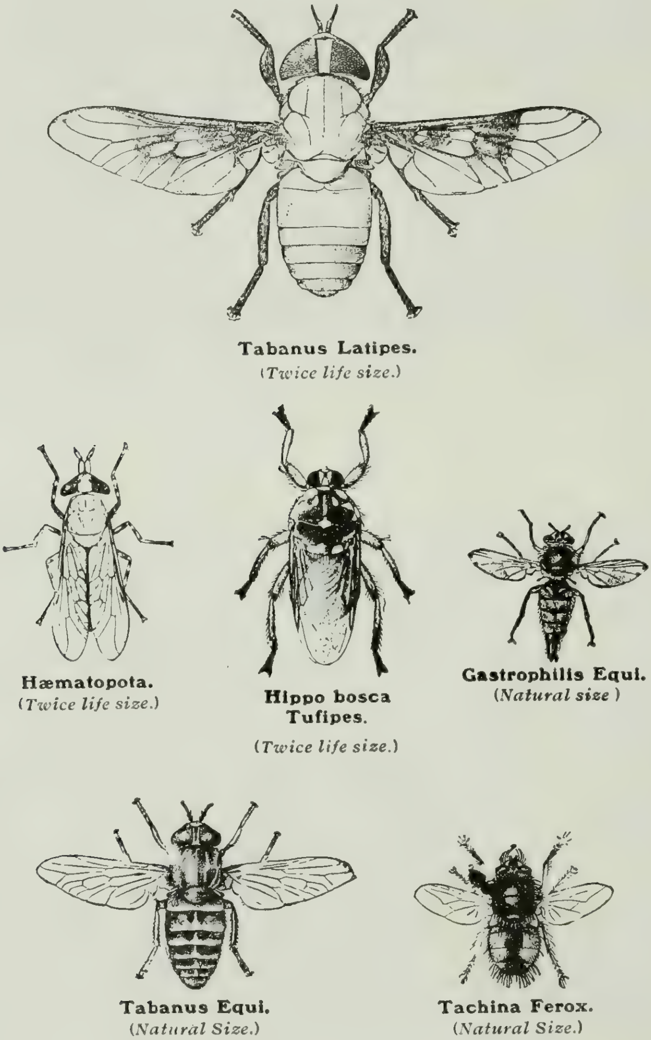
Earl Grey's carriage. Note that the horses' tails are "banged," not docked.



A magnificent collie. An instance of the beautiful in dog life

I said, "No, I think not. We have had such a good Convention and these ladies have had so many good things which they will carry home with them that possibly anything I might say at this time would detract from the effectiveness of the work, rather than add to it."

I said when I met Dr. Guest this afternoon that I was pleased to meet her; I do not know that I can truthfully say that I am pleased with the outcome of our conversation. I do not like these expressions of appreciation very well. I am like the little boy Mr. Atkinson spoke of; I would rather do things and not hear expressions of appreciation, especially in public, from those who are interested. I feel very keenly the responsibility which rests upon me as Superintendent of the Women's Institutes and I want your hearty co-operation as I have had it in the



Tabanus Latipes.
(*Twice life size.*)

Hæmatopota.
(*Twice life size.*)

Hippo bosca Tufipes.
(*Twice life size.*)

Gastrophilis Equi.
(*Natural size*)

Tabanus Equi.
(*Natural Size.*)

Tachina Ferox.
(*Natural Size.*)

Flies That Torture Horses.

past. It requires some person to look after the executive work and to receive and pass on suggestions. I feel that that is about all I have done, or can do, although it is true that in getting up the programmes for the Conventions from year to year, I am practically left alone and have to shoulder the responsibility. But the Conventions are made a success because we have such a noble band of women who are assisting in this grand work throughout Ontario and all I can say is that I will continue to give my best thought and effort to the work. On account of the increased demand from the farmers and the women of the rural districts for more assistance along various lines I find the work of a general directive nature increasing, and it is practically impossible for me to do many things which should be done. and we could, as suggested by Dr. Guest, utilize the services of two or three supervisors in connection with Women's Institutes. We welcome criticism and activity. If you see anything in the Institute that you do not like, let us know.

I will not say more, except to wish you "God speed" the coming year. I thank you heartily for your expression of appreciation and approval.

EYESIGHT AND HOW TO CARE FOR IT.

MRS. E. B. MCTURK, LUCAN.

> "There is a certain power
> Which men do call the light; like wind and storm,
> It doth descend unto us from above.
> And like to these, with swiftness uncontrolled,
> The objects which it touches gain a new
> Significance, and a peculiar stamp.
> And oftentimes, with warmth, 'tis closely blent.
> 'Tis through the eye, it finds its way to us,
> And by the power of seeing it, we gain
> A true perception of the universal."
>
> —From "King Rene's Daughter.'

The subject selected is a wide one, involving the science of anatomy, physiology and optics, and has enlisted earnest workers in the study and accumulated a literature of its own which is almost exhaustless.

When we consider how people wilfully abuse and neglect this most delicate organ or our body, we think it high time to introduce this subject to the Women's Institutes of Ontario. Consider what our eyes mean to us. We see a stranger and our first thought is, "what beautiful eyes": then we look again and perhaps see plain features or poor complexion, unnoticed before because of the beauty of the eyes.

You look into the eyes of your friends and without a word spoken, you read sympathy for your trouble, joy for your happiness or encouragement for your success.

You feel pity at the sight of one who is blind, but you cannot realize what it must be to live in such darkness, not to see the faces of your dear ones or the ever changing beauties of God's earth. Yet you keep on abusing your eyes and allowing your children to do the same.

The eyes are the windows of the soul. Think of the time you housekeepers spend in polishing your windows and draping them so carefully that the passerby will admire their spotlessness. The business man spends much labor on the cleanliness, brightness and good arrangement of his windows for the simple purpose of attracting the public to their beauty. How much more then, should the windows of the soul receive attention, when we consider how they reflect the inmost feelings of our nature.

The object is to place before you such simple knowledge as would be necessary for you to understand the conditions under which the eyes do their work and place their knowledge in the most simple language possible.

An intelligent care of the eyesight requires some knowledge of the structure and functions of the organ of vision. One would naturally suppose that a subject so important to the life of the individual would present attractions to an inquiring mind, but the experience of eye specialists goes to show that, outside of the profession, the simplest laws of optics are a sealed book.

Many who will rest a tired back or nurse a lame leg, will goad on their willing but disabled or overstrained eyes in the most reckless way.

The hints which I give you will have reference to prevention rather than cure.

Lawyers say, " the man who pleads his own case has a fool for a client," and many sad results are met with in proof of the fact that the man who undertakes to doctor his own eyes has a patient far from wise.

In the small space occupied by the eye and its appendages, all the anatomical elements of the body are represented and, by their delicate adjustment to one another, render this little organ one of the greatest wonders of Nature.

The eyeball is nearly spherical in form and about an inch in diameter. It consists of three coats or membranes and three humors. The outside coat is a tough firm membrane and protects the delicate contents. It is called the " Sclerotic," we would say the white of the eye. One-fifth of this coat is transparent, called the Cornea. The next coat is the " Chorid," consisting of a network of blood vessels, lined with a layer of nearly black cells which absorb the excess of light, otherwise by reflection and diffusion we could not have accurate vision.

The Iris forms a curtain behind the Cornea and it is the Iris that gives to the eye its special color and upon which its beauty, to a great extent, depends. When we speak of a brown, blue, hazel or black eye, we mean that this is the color of the Iris, which color depends on the waves of light reflected and a greater or less amount of dark pigment. The color is usually in accord with the individual, so we have every shade from the black of the negro to the pink of the albino, which has no pigment and we see the reflection of the red blood of the Chorid. Their sight is defective because they are painfully sensitive to light and have not the natural protection. The eyes of infants are always blue until the sixth or eighth week, so our poets are quite right in the statement that, "Babies look about them in blue-eyed wonder." Near the centre of the Iris is a round opening, the Pupil, through which all light must pass to the back part of the eye. The pupil has the property of contracting or dilating. Belladonna applied to the eye will dilate the pupil and opium or blood rushing to the head will contract it. At the junction of the Iris and Chorid is a bundle of very important muscles named Ciliary muscle. to which we will again refer.

The Retina is the third and most important coat, for on it are formed the images of external objects by means of which we are said to " see " them. There are several layers but only two important to us, the external which receives the image and the internal which conveys the sensation to the brain.

The Optic Nerve is formed by the nerve fibrils collected in a bundle passing from the back of the eye, received in a strong sheath and passing to the brain. The optic nerve conveys no impression than that of light, hence when we get a blow the result is a flash of light or we "see stars." A disease of the optic nerve frequently destroys sight without the slightest pain.

The three humors are aqueous, crystalline and vitreous. The aqueous is nearly pure water. The crystalline is firmer and shaped like a double convex and is contained in an elastic capsule. It is very flexible during youth but grows denser with age. The vitreous is colorless and transparent. It maintains the form of the eyeball and yields sufficiently to protect the delicate structure. The eyeball is imbedded in a soft cushion of oily fat which supports and protects it but allows it to move in all directions. The orbit in which the ball is lodged is a hollow cone of bone projecting forward and outward and shielding it from a blow. The eyeball cannot be injured by the fist except when it is aimed from beneath.

The eyebrows are formed of muscle and thick skin covered with stiff hairs which protect the eyes from excessive light and shed any perspiration. The eyelid is thin loose skin, protecting the eye during sleep and, at the least touch, at once covers the eye.

The lachrymal apparatus is the gland for secreting tears and the passage for draining them off. It is lodged in the roof of the orbit, is poured upon the ball through a number of small ducts carried by the passages into the nose. Infants do not shed tears before the third or fourth month and the elephant is the only one of the lower animals accused of this human weakness.

The eyeball is moved in different directions by six muscles. When from any cause one set of muscles act in excess of their opponents, a squint is produced. The operation for "cross eyes" consists in weakening, by cutting, the over-acting muscles. You have sometimes noticed a child with an eye having a tendency to turn outward or inward more noticeable when the child is tired or has been using the eyes. It is caused by one muscle being stronger than the opposite one and so draws the eye out of its true position. If this child is at once properly fitted with spectacles by an expert optician, the weak muscle becomes strong and in time the glasses will probably be laid aside, thus saving the grown-up child from a crooked eye and possible operation.

When we look at a large object or a landscape we see only a small portion of it at a time, distinctly. The image received is like a picture finished in the centre but roughly sketched at the borders. When you read, it is necessary to move the eyes back and forward along the lines, for otherwise we could distinguish not more than one long word. If we hold a veil between our eyes and a book we can either see to read or see the meshes distinctly, but not both at the same time, thus showing that some change takes place in the eye to adapt it to different distances. This is called the Accommodation of the eye and is due to the elasticity of the ciliary muscles and crystalline humor or lense. Sometimes measles, scarlet fever or other illness will paralyze the ciliary muscle and the greatest care should be taken in using spectacles at this time so that no bad results may follow.

Briefly, we will refer to some of the common injuries and diseases, and some errors in reference to them.

The most common form of injury is from particles of dust and small foreign bodies. As the course of the tears is from the gland at the upper and outer part of the ball, towards the canals at its inner side, such particles are washed by the flow of tears and moved by the action of the lids towards the inner or tear lake from which we unconsciously remove them. Sometimes a cinder or piece of coal with points becomes lodged and gives severe pain. It is a simple thing to invert the eyelid and, by removing the mote, save such suffering. Direct the patient to look downward and outward, place a pencil point on the upper part of the lid above the top of the ball and press it gently downward while the edge of the lid is raised. The inner surface is then exposed and the mote may be removed.

A smooth object is usually carried by the tears and has given rise to the idea of sending a smooth body after a lodged one. For this purpose some people have used, what may be termed, "eye stones," a smooth flax or bean seed. Some time ago a patient was brought to a hospital with an inflamed and painful eye of some weeks standing. On examination, a seed with a well developed sprout was found in the lining of the lid. A foreign body, such as iron or steel is sometimes driven with such force as to be firmly imbedded and cause severe inflammation. The removal of such should be entrusted at once to skillful hands, as wounds with a pointed instrument often result in the formation of cataract. Lime splashes in the eye is dangerous and sometimes results in blindness. Wash the lime instantly from the eye and bathe with a teaspoonful of vinegar in a glass of water or with sweet oil to make the lime inert. Bathe the eye in milk when it has been injured by acids.

Sympathic Ophthalmia is when an injured eye affects the good eye to such an extent as endangers the loss of both. It is better to have removed the offending eye, which is neither useful nor ornamental. The operation for a disorganized eye is not serious and an artificial eye can cover all disfigurement.

Sometimes there comes an inflammation which, if taken at once, yields to rest and simple treatment but, if neglected, often results in what is known as granular lids. The inner surface of lids become rough and thick like sandpaper and the constant friction injures the Cornea and with it is generally a disagreeable discharge. It is one of the dreaded and obstinate complaints. There is another disease, much the same as the one just mentioned, which has a thick yellowish discharge and is very contagious, especially where many people are crowded together as in asylums or charity schools. This is the disease found in Egypt, which saddens the sympathetic heart of the traveller. It is caused by the ignorance and poverty of the people, the intense heat, glare and driving sand. It is also found with infants and can be perfectly cured, if taken at once.

The greatest care should be observed in using towels or basin which one with diseased eyes has used. Let me here say that it is perfectly surprising to see people, who ought to know better, use the towels and other toilet articles in public places. They must know that all sorts and conditions of people with their divers diseases have used the same. How ever can they do it?

A few words about bathing the eyes. Some think it strengthens the eyes to open them under water but, as we are not amphibious animals, the eyes certainly cannot suffer for the want of this unnatural treatment. When the eyes are tired and burning or head aching, a hot steaming will relieve. Put a dish of water over the heat; as soon as it warms wring out a thick towel and lay well over the eyes and temples, repeat when cool, until as hot as can be borne.

Cataract is a disease of the crystalline lense which becomes opaque and obstructs the entrance of light. The pupil instead of being dark shows the white surface of the lense behind it. No one but the most skilled specialist should be consulted for this disease.

Many people are alarmed by floating specks seen in the eye and which take various shapes. They may come from a deranged stomach or a ruptured blood vessel and are sometimes found in the vitreous humor of a healthy eye.

In looking briefly at the optical defects, we will begin with Presbyopia or old sight, which is simply the loss of power to accommodate the eye to different distances. After the age of forty years the lense and muscles become less elastic and unable to focus the eye on near work, we demand more light and larger print, at least when we cannot get along any more, we go to the optician for spectacles. The object of these glasses is not to magnify, but to clear the letters and rest the eyes. Some people will tell about reading without glasses far beyond the usual age. The reason is, that unknown to them they have had some degree of myopia and as age increased their sight improved. Also you have heard of second sight which has been caused by some change taking place in the lense and they have become short sighted.

Hypermetropia or long sight is when both far and near vision is indistinct without a strain and depends on the form of the eye. In the perfectly formed eye the rays of light are parallel and focus at one point, giving distinct vision, but in hypermetropia, where the form is more turnip shape, the image falls behind the retina, giving indistinct vision. With young people this defect passes unnoticed for some time but at last there comes a sense of fatigue, heavy feeling, dizziness and headaches, the print becomes misty, all caused from constant strain to bring the rays to one point so as to have a clear vision. Myopia, or short sight, as in the preceding defect, is caused from the form of eye when the focus of rays fall in front of retina and the ball is long. In many cases it is hereditary, is increased by close work and is one of the penalties of civilization. During the period of childhood and youth when the organs are growing and the tissues changing, the results of imprudence and abuse is one of the most important problems of the present age. The results of examination of eyes of pupils at school show a rapid increase of defective vision, proving how important it is for parents to care for the children's eyes. In selecting glasses for myopia, it requires great care, as much harm may be done by using glasses not properly fitted. It is about as safe to try spectacles from a peddler's box as to try the contents of the various bottles on the druggist's shelf without a prescription.

Astigmatism is the want of uniformity in the curvature of the cornea and the eye is more the shape of an egg than an orange. In that case you can easily see that rays of light passing into the eye could not fall on the same point. There are several kinds of astigmatism which we need not touch. The frowning forehead, the distressing headache and general uncomfortable feeling are the chief symptoms of this defect. After you have had your eyes tested and properly fitted with a pair of cylinder lenses to correct the defect, you will feel as if you had a new lease of life. This defect often shows itself after a sickness, as whooping cough, measles or scarlet fever.

After diptheria there is often a paralysis of the accommodation; the patient may not be able to read a word, with careful treatment it becomes better but may take several months.

Just a few words about spectacles. Men who are at work where bits of steel or other particles are flying, should wear plain clear glasses to protect their eyes as many are permanently injured in this way. Light smoke glasses are best protection from snow or glare; while working in an artificial light blue glasses are best as they absorb the yellow rays.

Bi-focals are glasses of two sights, are very convenient and were first worn by Benjamin Franklin.

Many people insist on asking for pebble glass. This is a Brazilian quartz and has no advantage over crown glass, except that it is harder. The essential in glasses is, that they be free from flaws, properly ground and clear as you turn them about, like a drop of water. You can tell a poor glass by the shade of color in it.

Be as particular to have your frames fit comfortably as if it were part of yourself and choose the style which is most becoming to you. Don't take any kind because they are cheap, for you will soon find out they are very dear.

Too much use of the eyes exhausts the nervous system, congests the brain and brings on headache. Rest the eyes by looking away in the distance. Do not read lying down or in a railway carriage where the focus is constantly changing. Sit to read or write so the light will fall on the book over the left shoulder, then no shadow will be cast. Keep the wisps of hair out of your children's eyes and do not dress the hair so low as to cause a feeling of strain about the eyes.

School life is an unnatural life for children who are growing, to be cramped several hours in a badly lighted and ventilated room and then sent home with several hours of homework. Many children are laughed at, abused and their lives made miserable, for their dulness and stupidity at school, when the whole trouble is defective vision. Often there is a glare of light on the blackboard which makes it next to impossible to take down the work correctly.

If I have given some ideas on this important subject which will make us all more careful of this most delicate and most beautiful organ of the whole body, my time has been well spent.

"Then tell me, to what end doth thou suppose
Omnipotence hath gifted thee with eyes?
Of what avail to thee are those twin stars
That sparkle with such wondrous brilliancy,
They scorn to grasp the common light of day."

HOW TO KEEP WELL.

From Aiken's "Home Nurse's Hand Book of Practical Nursing."
(By permission of Publishers.)

Talk health. The dreary never-changing tale
Of mortal maladies is worn and stale.
You cannot charm or interest or please,
By harping on that minor chord—disease.

"Whatever the weather may be," says he,
"Whatever the weather may be, . .
It's the songs you sing and the smiles you wear,
That's a-making the sun shine everywhere."
—Riley.

Those who wish to have strong healthy bodies must early learn that there are laws of health which must be known and observed, and that sickness follows the continued violation of these rules. These health laws have been likened to a chain of defence consisting of several links. Important links in the health chain are: Plenty of clean air to breathe day and night; proper food properly prepared and eaten; water free from impurities; a uniform degree of sunshine and heat-air, neither too hot nor too cold; exercise, rest, and plenty of sleep; the body must be kept clean; the poisonous waste products of the body must be thrown off; disease germs must, as far as possible, be prevented from getting into the body.

The body in many respects resembles an engine needing to be constantly supplied with material from which heat comes, from which new tissues are formed and power to work or move around is produced. If an engine is to do good work, the flues must be kept clean, it must be well oiled, it must not be allowed to become clogged with ashes and waste matter, the amount of fuel must be regulated, the draughts must be properly adjusted. In a general way this is true of the human body.

AIR is the most immediate necessary of life. About one-fifth of the air is oxygen.

The blood is purified by its contact with the oxygen in the lungs; hence it follows that, unless oxygen is supplied, the blood must retain the impurities it has accumulated in its circulation through the body, and the whole system suffers.

IMPURE AIR DISEASES.—A large proportion of sickness comes from breathing impure air—air which is loaded with dust, poisonous gases, smoke, or the exhalations of the body; and air which is infected with disease germs. Among the common impure air diseases are pneumonia, bronchitis, influenza, and tuberculosis. Those who constantly breathe bad air, weaken their bodies so that they contract other diseases very easily. The bad air in homes is directly responsible for a great deal of the colds, sore throats, coughs, tonsilitis, etc., which afflict some families every winter.

Cold air is healthy, stimulating and curative in its effects, and in every living and sleeping room there should be some means of escape provided for the bad air and of entrance for fresh, clean air. The belief that night air is injurious is a delusion. It is, as a rule, freer from dust than the air breathed during the day.

SUNSHINE AND LIGHT are also necessary if sound bodies and robust health are to be maintained. It is hard to explain how the sun influences the health, but it is well known that it does so. And this is true of plants as well as of the animal creation. For illustration; if one geranium plant is placed where the sun may shine on it freely, and another is placed in a dark room or cellar, there will soon be observed a great difference in the color of the leaves and the general growth of the plants. A similar difference will be seen by careful observers in children who are housed in dull dark rooms, as compared to those who have plenty of light and sunshine in and about their homes.

REST, RECREATION AND EXERCISE.—Every one knows the saying about "all work and no play," but people do not always remember that if their "play" is really to do them good, it should be as great a change from their work as possible, and should also give their bodies some exercise. It is not a good thing when one's only form of recreation is to go to crowded places of amusement where, perhaps, the ventilation is bad, and they are breathing air which is so stale as to be poisonous. Very much depends on what anyone's everyday work is, for the best recreation is something that is a complete change from that. As a rule, people use one part of their bodies far more than another in their work; for instance, those whose work is typewriting or machining, sit still, and chiefly use their hands and their brains, while others may be walking or standing or doing work in which they use their muscles a great deal. It is well to let our recreation give the unused part something to do, so as to try to have every part of the body used equally and have its fair share of exercise. If the work means sitting still indoors, the recreation should be something in the way of outdoor exercise, while for anyone who works out of doors, or is constantly moving about, that is not so necessary. People who spend their time in work-rooms and factories where the air is often bad, should make a great point of getting some exercise in the open air, and, though they may be feeling almost too tired to do anything except go home and rest, it is worth while to make the effort, for the sake of the good it will do them.

Proper Food, properly prepared and eaten, is necessary to build up the body during the growing period, to repaid it, to furnish heat, and strength to work. The foods eaten should be chosen so as to supply the different elements the body needs for all these purposes.

Among the foods needed for building up and repairing the body are: milk, eggs, lean meat, bread, oatmeal, and corn.

Foods needed to produce heat and strength are: Starches found in potatoes, rice, breakfast foods, etc.; sugar, honey, and fats, such as butter and the fat of meats. A certain amount of lime and other mineral matter is necessary to provide material for bone-making and repair and for the teeth. These elements are found in water, fruits, and green vegetables.

Chewing the food thoroughly is one of the important essentials of health. Hence in keeping well, the teeth have a very important work to do. Food that is not properly chewed is harder to digest, and the stomach often refuses to do the double duty forced on it by half-chewed food. This is the cause of much of the dyspepsia and other digestive trouble that is so common.

Overeating.—Eating more food than the body needs, or than the organs can dispose of, is a fruitful cause of sickness. The system gets clogged up with waste products, and sooner or later some organ is going to weaken because of the overwork it is forced to do.

Eating the wrong food, or not enough of any one class of food, or food improperly prepared, all affect injuriously the human structure and make it impossible to keep entirely well.

Plenty of water is needed to supply the fluids of the body and to help wash away the waste or broken-down tissues. Neglect to drink enough water every day, summer and winter, helps to cause sickness.

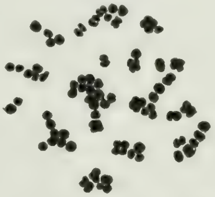
Cleanliness is one of the greatest aids to health. Dirt and disease go hand in hand.

The mouth and the way in which it is cared for (or neglected) has more direct bearing on health than most people believe. It is the gateway to the body. Leading from it are seven openings—two to the nose and upper air passages, one to the stomach, one to the windpipe, and thence to the bronchial tubes and lungs, two tubes lead from the throat to the ear, and one opening leads to the outer world. Therefore, the importance of keeping the mouth clean, of careful cleansing of the throat when acute diseases are prevalent, and of keeping the teeth in good order, needs no argument. Decaying teeth are a breeding place for germs and favor the development of germ diseases. Poor teeth mean poor mastication of food, and consequently poor digestion.

Friends and Enemies of Health.—While much has been said and written about germs or bacteria or microbes as causes of disease, there is still much misunderstanding as to these tiny forces which exert such a powerful influence in favor of or against health. The misunderstanding and differences arise partly from the fact that the germs are so small that they cannot be seen by the eye without the aid of a microscope.

A germ is much like a very tiny seed, and like other seeds must be planted in a soil that is suitable before it will grow. Pansy seeds, if planted in dry sand or ashes, would not grow. They might retain their power to germinate, but they would not take root in such a soil. If a very poor soil of dry clay were provided for the seeds they would probably grow a little, but the chances are the life of the plant would be short. If good suitable soil and conditions were provided to receive the seeds, there would be fine healthy plants as a result.

The body is the soil in which the seeds or germs of disease develop. There are natural elements in the body intended to overcome or kill the germs of disease which enter the body. When the blood is pure, and the organs sound and healthy, doing their work properly, the germs which gain entrance will find "stony ground" unsuitable for their growth, and will be quickly cast out or overcome. But, if the body is weakened from any cause, or the blood is deficient in quantity, or poor in quality, there will be less resistance to the growth of the seeds of disease, and they will more readily take root and cause sickness.



Micrococcus meningitidis cerebrospinalis (× 1000).

The germs of disease of various kinds are always found in the air. They are often carried in food and water. They flourish wherever dirt is allowed to collect, and in dark, damp or unsanitary surroundings, and are readily carried about in the air by means of floating dust, or clothing, dishes, etc.

Disease germs are different from each other in many ways, just as other seeds are different in appearance and general characteristics; some bodies are suitable soil for one kind of germ, and very poor soil for other germs. By means of the microscope and other methods of investigation, medical men are able to determine the kind of disease that is developing by finding out the kind of germ. For instance, a case of severe sore throat may or may not be diphtheria. If diphtheria, in order to protect others, the sick one should be promptly isolated. The matter can be decided by a scientific examination of a swab which has been used to brush the throat. Children are much more liable to develop sickness on exposure of disease germs than others, and, for that reason, greater precautions are needed in their case than with adults.

THE SPREAD OF DISEASE.—Among the common methods by which disease germs are spread are:

1. By means of dust the germs may, when dry, be distributed through the air.

2. By being washed over the surface of the earth or by filtering through the ground they may infect the water supply. (It is claimed, however, that disease germs are rarely found lower in the earth than 5 or 6 feet, certain elements in the earth having the power to destroy them in the course of time.)

Bacillus tuberculosis; glycerine agar-agar culture, several months old.

3. By means of flies they may be deposited on food or drink.
4. By means of clothing, unclean utensils, soiled boots, or animals.
5. By direct contact through handling.
6. By means of mosquitoes.

HOW DISEASE GERMS ENTER THE BODY.—Disease germs may enter the body through the mouth, the nose, through the skin, through wounds, and through any of the cavities of the body which have an external opening.

Communicable diseases are those caused by disease germs, and which are capable of being communicated from one person to another. A false sense of security is often observed when, for instance, a mild case of measles or scarlet fever exists. There is a feeling that there is less danger of infection, because it is not a severe attack, while it is forgotten that the severity of the disease depends greatly on the soil in which the seeds or germs of disease are sown. One person may have a mild attack of a certain disease, while another to whom the disease was transmitted may have a serious or fatal attack because the body was "run down" or in poor condition to resist disease.

Disease germs are always destructive. Their work is to tear down and feed on the living tissues in the body, and to produce within it substances poisonous to the parts which are attacked by them.

GOOD GERMS.—All germs are not disease germs. The majority of germs are good germs, or germs which are friendly to life and health. Good germs feed on dead leaves, grass, and waste matter, and render harmless many objects which would otherwise be destructive to life. Animal life is dependent on vegetable life. Vegetable life is dependent on certain qualities in the soil, each blade of grass and plant appropriating from the elements of the soil the material needed for its growth. If the earth is to continue to produce the vegetation on which animal life depends, the elements drawn from it by plants must in some way be restored to it. The restoring of these elements is dependent on these little invisible friends, the germs. Through their increasing activity, dead plant and animal matter is disintegrated, broken up into simple elements, to be again absorbed by the earth and again used to produce vegetation.

DISINFECTANTS are substances which have the power to destroy the disease germs.

Heat is the most effectual of all methods used in destroying such germs and rendering objects safe after being infected.

Boiling will destroy practically all disease germs in a very few minutes. A temperature below boiling-point is sufficient to destroy most of them in a half hour. There are some few diseases in which the spores or seeds or germs are hard to destroy. In such cases boiling for two hours is needed. The germs of cholera, typhoid fever, dysentery, pneumonia, diphtheria, erysipelas, influenza, cerebrospinal meningitis, tuberculosis and pus-producing germs do not have spores and are readily destroyed by ordinary methods of disinfection, intelligently used.

When drinking water is suspected to contain disease germs, it is never wise to depend on filters to cleanse it. A glass of water that is clear as crystal may contain enough disease germs to infect a whole village. It is always safer to boil and cool the water before drinking it. Ice which contained typhoid fever germs has been responsible for some of the most serious epidemics of the country. Green vegetables or fruits washed in impure water, or in water containing disease germs, may as readily convey the infection into the system as drinking water. Infected ice may be put in pure water to cool it and thereby carry disease into the body.

Chemical disinfectants are used for disinfection of such substances as cannot be purified by heat. Carbolic acid and chloride of lime are illustrations of chemical disinfectants.

Ordinary cleanliness, dryness and sunshine are important aids in the work of disinfection, as well as in the prevention of disease. Experiments have shown that few disease germs can live many hours if exposed to the direct effect of the rays of the sun. Dryness also is unfavorable to the development of disease germs. Hence, dryness and sunshine combined are two powerful weapons with which to fight disease.

Points to be Remembered.—Those who wish to be well must observe the laws of health.

Clean air, proper food, pure water, plenty of sleep, rest, and exercise and general body cleanliness are the important essentials to health.

Give the body plenty of water, in summer and winter, to keep the machinery lubricated.

The lungs, skin, bowels and kidneys are the sewers of the body. It is important to keep each of them in good working order if waste products of the body are not allowed to accumulate.

A large proportion of sickness in cold weather comes from impure air.

Cold air is one of the best remedies in some diseases.

Sunshine and light are necessary if sound health is to be maintained.

Properly balanced foods are essential to sound, robust bodies.

Cleanliness of the mouth has a direct bearing on health. When food is imperfectly chewed it throws an extra burden on the digestive organs.

To keep the body in sound condition is one of the best ways to guard against communicable diseases.

Children are much more liable to develop germ diseases than adults.

A mild case of scarlet fever is quite sufficient to cause a severe case in another person.

Filters are not to be depended on for safety if the water supply is suspected to contain disease germs.

Infected ice may easily infect pure drinking water if put into it.

THE BED AND BEDMAKING.

(From Aikens' "Home Nurse's Hand Book of Practical Nursing." By Permission of Publishers.)

The manner in which the bed is cared for will have a great deal to do with the patient's comfort. A well kept bed is one of the signs that a good nurse is in charge.

A single bed is always preferable to a double bed for the sick-room, and an iron bed to a wooden one. The iron bed does not absorb or retain odor or moisture and affords no hiding place for bugs or other vermin. If a bed is too wide, the nurse cannot reach the patient if he lies in the centre, without getting on the bed, a proceeding which is always objectionable.

The Mattress.—The best mattress is one of hair or felt. Hair is preferable in a sickroom, if there is room for choice. A feather mattress is the worst possible kind to use. It is soft, sinks into the hole as soon as the patient lies on it, absorbs moisture, retains odors, and it is exceedingly difficult to keep such a bed smelling fresh and clean. Further, if the patient be entirely confined to bed for any length of time, it offers favorable conditions for the development of bed sores.

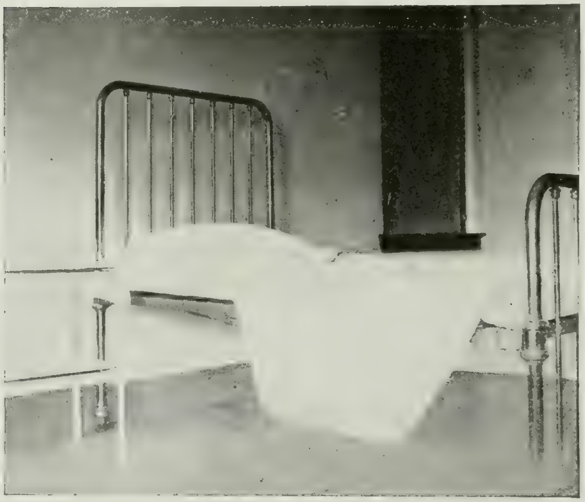
Extra firmness in a mattress is needed in many surgical cases, where it is of great importance to keep the bed flat and level. This may be secured by placing a couple of thick boards under the mattress. These boards should have holes bored in them so that the air can reach the mattress.

To protect the mattress, a rubber sheet is desirable, especially where there is a likelihood of the mattress becoming wet or soiled by discharges from the body, or in giving treatments. When a rubber sheet is not obtainable, a piece of table oilcloth may be used. In either case, it should be securely pinned to the mattress to prevent wrinkling. In emergency, a thick layer of newspaper may be used underneath the sheet and bed pad, as a protection for the mattress. Over the rubber sheet, a quilted cotton pad or thin blanket should be used before putting on the lower sheet.

Bed Clothing.—There is a general tendency, in cases of sickness in homes, for the home nurse to pile on too much bed clothing. Too much warmth tends to weaken the invalid, and heavy bed clothing is an unnecessary burden.

Position of the Bed.—It should be placed so as to be accessible on three sides, if possible. When a patient is likely to be confined to bed for some time, it is desirable to place the bed so that he may look out of the window. Artificial light should come from behind the patient when this can be arranged. In any case, shades should be adjusted over lights so as to prevent annoyance from strong light in the eyes.

To Make an Empty Bed for a sick person there will be needed two sheets, a quilted mattress pad, two pillow covers, a double blanket (or single blanket and light washable quilt), a bed spread; and, in special cases, a rubber sheet to protect the mattress and a draw sheet to cover it. Have these ready and arranged on a chair in the order in which they will be placed on the bed. First be sure that the mattress has been brushed and the springs and the bed frame cleaned. One who understands bedmaking thoroughly will be able to make an empty bed by going round it once.



Bed finished, turned down ready for convalescent patient.

The mattress pad is first placed in position. The lower sheet is unfolded, the wide hem placed at the head of the bed and the middle fold placed exactly in the middle of bed. Allow enough to come well over the upper end of the mattress. Tuck it under firmly as far as can be reached from across the bed. The corner is finished squarely, and the edge of the sheet tucked singly along the side, underneath the mattress and the foot.

The rubber sheet is next put on. It should be large enough to reach the edge of the pillows at the top, to come down well under the hips, and to tuck snugly underneath the mattress at each side.

The draw sheet is a smaller sheet placed over the rubber sheet. Its use saves changing the lower large sheet as often as would otherwise be necessary. It can be drawn from under a patient and replaced by a clean one with very little disturbance or exertion. The rubber sheet with the draw sheet over it must be drawn firmly and tightly over the mattress and secured by safety pins underneath at each corner. The rubber sheet is only necessary for the protection of the bed and should be removed when not needed.

To put on the upper sheet, place the wide hem at the top, the middle of the sheet in the centre of the bed and tuck in first at the bottom firmly at least five inches. It should then be drawn up smoothly and tightly towards the top.

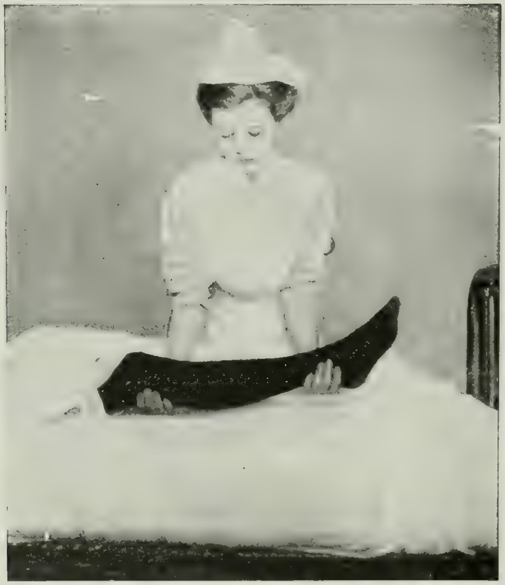
Changing a draw sheet.

The double blanket is put on next with the fold at the bottom. The spread and the blanket should be tucked in snugly at the foot so that their edges will reach easily to the patient's neck. Avoid too much clothing at the upper end. The blanket is tucked in snugly at the sides underneath the mattress. The spread is left free and its corners turned neatly and squarely.

To finish the opposite side the nurse goes to the other side of the bed, turns the upper covers back, tucks in the lower sheet tightly with square corners, secures the rubber sheet and draw sheet with safety pins, arranges the upper sheet as on the other side, and the blankets likewise. The spread, or counterpane, is then drawn up, and the end of the upper sheet folded back over it neatly. The pillows are then shaken and the covers smoothed neatly and placed, one flat with the open end of the pillow cover always away from the door, and the other arranged upright on it, leaning against the head of the bed. The bed is then ready to be

Changing a sheet.

turned down for the patient. If a spread is not desirable or available, cover the blankets with another sheet to give the bed a finished look.



How to lift an injured or painful leg.

To change the bed with the patient in it without needlessly jarring or causing exertion to the sick one is an art that requires practice to do it easily. Have everything at hand before beginning. Remove the safety pins from the draw sheet, take off the spread, arranging it neatly so as not to touch the floor. Take away one pillow. loosen all the clothing at the sides.

Changing the lower sheet is not difficult if the directions are closely followed. Assist the patient to the edge of the bed opposite to the one on which it is proposed to begin changing. In turning the patient, be sure to support the parts of the body which need it most. If a leg is fractured, lift it carefully and hold it while the patient rolls over. If the patient has typhoid fever or an abdominal wound the nurse's hands should be slipped under the hip and side. If the patient is to be brought to the left side, go to the left side of the bed, stoop, and slip the right hand under the patient's right shoulder, and the left hand under the right hip. Then slowly turn her toward you, always being careful that the support is given with the whole hand, not with the fingers alone, and that the finger nails do not press into the skin.

Changing pillow.

When the patient has thus been brought to the edge of the left side of the bed, the nurse goes to the opposite side, rolls up the lower sheet, the draw sheet, and the rubber sheet against the patient's back. The clean lower sheet is then put on the right half of the bed as directed in making the empty bed, and the rubber sheet drawn down by tucking one edge under the mattress and securing it with safety pins. The patient is then brought gently over to the side freshly made, the soiled lower sheet and draw sheet are removed, the clean ones drawn tightly over and properly secured under the mattress, keeping the corners square. Avoid tugging or pulling a sheet forcibly from under any sick person.

To change the upper sheet the home nurse must practice to do it quickly and neatly and avoid exposure. The clothes are first freed from the foot and sides, and the blankets turned back, leaving only the soiled upper sheet over the patient. Before removing this, spread the clean one over it, and tuck it in firmly at the bottom. Let the patient hold the upper end of the clean sheet, while the hands are slipped underneath it and the soiled one drawn out. The blankets are then spread and drawn smoothly up, and the extra length of the upper sheet turned back over them.

A well-made bed will have the clothes on straight and tight. It will be smooth and free from wrinkles. After the bed is finished run the hand from foot to top of bed, and test the result for smoothness, tightness and freedom from wrinkles.

A badly-made bed has the appearance of being thrown together loosely, carelessly and without method.

To change the pillow covers stand at the right side of the patient if the bed is arranged so that this is possible. Then gently slip the left hand under the upper pillow (if there are two) and let the patient's head rest on your arm. With the right hand over the patient draw out the pillow on the opposite side and let the patient's head gently down. Shake the pillow thoroughly after removing the cover. Put on the clean cover, smoothing out and folding neatly under it any surplus covering. Then slip the hand under the patient's head and support it while drawing out the pillow left to the opposite side, and replacing it with the clean fresh one. Never let a patient's head drop with a jerk.

Avoid Exposure.—In making a bed or changing a gown or giving a bath or treatment of any kind the home nurse should always remember this injunction. It is never necessary to completely uncover a patient. The refined, well-bred nurse will always manage the work so as to avoid needless exposure.

In cold weather the room should be comfortably warm, and at all times clothing should be carefully aired. Dampness in a bed or bedding is always to be avoided.

TO MAKE A BED WITH A PATIENT IN IT without changing the sheets; free the bed clothing at the top, bottom, and sides. Brush out carefully all crumbs, lint, etc. A whisk broom is a good thing for this purpose, or a half soiled towel. Do not brush the bed with a towel you expect to use for the patient's face or hands. Straighten the clothing, see that all wrinkles in the lower sheet or gown are smoothed out. Draw each piece of covering separately and tuck in tightly as previously directed. Shake the pillows, turn, and replace.

This should be done at least morning and evening with every patient who is obliged to be in bed the whole day.

POINTS TO BE REMEMBERED.—A well-kept bed is one of the signs of a good nurse.

Iron beds are more sanitary than wooden ones, and a hair mattress is preferable for the sick room.

Too much bed clothing weakens a patient.

Be sure to have a method in your bed-making. Criticize your efforts and see where you might have improved.

In changing a bed for man or woman always be careful to avoid exposure.

A well-made bed will have the clothing on tight, straight, and free from wrinkles.

When a patient is constantly in bed, the condition of the bed requires periodical attention. Making it once a day is not sufficient.

POT CULTURE OF WINTER AND SPRING FLOWERING BULBS.

Wm. Hunt, O. A. College, Guelph, Ont.

The culture of even a small collection of winter flowering bulbs will prove to be a source of much pleasure to the amateur flower lover. They are so easy to grow and require so little care and attention for the flowering results given, that no collection of plants is complete without them. They have been very aptly termed "ready-made plants," from the fact that good bulbs when purchased require to be given but very little care to produce their many-colored, sweet-scented blossoms in profusion. The outlay for a small collection need not be very large.

White Roman Hyacinths, Dutch Hyacinths, and a few varieties of the large trumpet flowering Narcissus and the double flowering and Polyanthus type of Narcissus will make a very good assortment. Tulips do not, as a rule, give as good results as the kinds mentioned. A few of the best bulbs for pot culture will be found in the following list:

For early flowering, Christmas and later: White Roman Hyacinths, Paper White Narcissus, Trumpet Major Narcissus (Early French), Chinese sacred Lily (*Narcissus orientalis*).

Single Dutch Hyacinth (Pink and Red). No. 1, on left, "Norma"; No. 2, Baron von Thuyll; No. 3, Lady Derby; No. 4, Pink Perfection. One bulb in a 5-inch pot.

For later flowering, January until Easter: Dutch Hyacinth, Single and Double flowering, in a variety of colors.

The following would make a good selection of named varieties of Dutch Hyacinths for growing in pots or in Hyacinth glasses.

Single red and pink: Pink Perfection, Gertrude, Lord Macauley, Lady Derby, Norma.

Single white and white tinted: L'Innocence, La Blanche, La Niege, Queen Victoria, La Grandesse.

Single light and dark blue: Gladstone, General Havelock, Grand Lilas, Grand Maitre, Grand Vedette.

Single yellow and orange: City of Harlem, La Plume d'Or, King of Holland.

Double flowering—Double red and rose: Lord Wellington, Sir Walter Scott.

Double white and blush-white: Grand Vanqueur, La Grandesse, Non Plus Ultra.

Double blue and purplish-blue: Bloksberg, Garrick, Laurens Koster.

Double yellow and orange: La Grandeur, Louis d'Or.

Narcissus, Bicolor Victoria (one of the best).

Narcissus, Bicolor Empress.

Narcissus, Golden Spur Single trumpet

Narcissus, Princeps

Narcissus, Van Sion (double).

Double Narcissus, "Van Sion." Color, Orange, Yellow. Three bulbs in a five-inch pot.

Dutch Hyacinth. "L'Innocence." One of the best single early white varieties.

A Few of the Best Tulips.

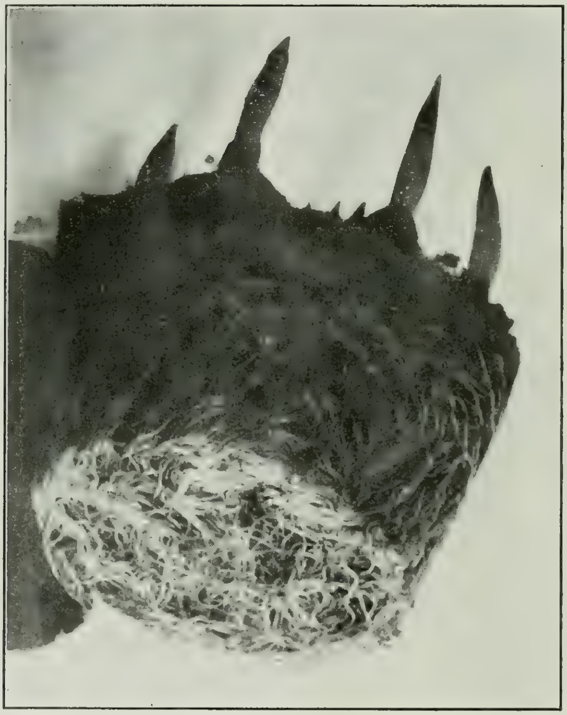
Single flowering: La Reine (white), Chrysolora (yellow), Goldfinch (yellow), Cottage Maid (pink and white), Vermilion Brilliant (bright red).

Double flowering—Couronne d'Or (golden yellow), Imperator rubrorum (scarlet), Murillo (pale pink), Tournesal (scarlet and yellow). The list could be made very much longer. Those mentioned are among the best.

Roman Hyacinths should be planted three bulbs in a five-inch pot. Narcissus, two or three bulbs in a five-inch pot, according to the size of the bulbs. One bulb in the centre of a five-inch pot for Dutch Hyacinths. Six or seven tulip bulbs can be used in a five-inch pot. If larger pots, bulb pans, or boxes are used to grow these in, the bulbs can be set quite close together, so that there is only about an inch or less of space between each bulb.

Drainage.—The pot should have a few pieces of broken flower pot, coarse gravel, coal cinders, or lump charcoal placed in the bottom for drainage. If boxes or flats are used, some half-inch holes should be bored through the bottom before the bulbs are planted in them.

Soil.—Good potting soil, not too rich in fertilizer, with a liberal admixture of sand, about one part sand to eight or nine parts loamy potting soil. Or about eight parts of light loamy garden soil—or loamy soil taken from underneath sod—mixed with one part sand, one part black soil from the bush (leaf soil), and two parts of well-rotted barnyard manure well mixed, will make a good substitute soil for bulbs. If barnyard manure cannot be obtained, one ounce of nitrate of soda, one ounce of muriate of potash, and one pound of fine bone meal, well mixed with two bushels of sandy loam soil, will make a good substitute fertilizer instead of barnyard manure.

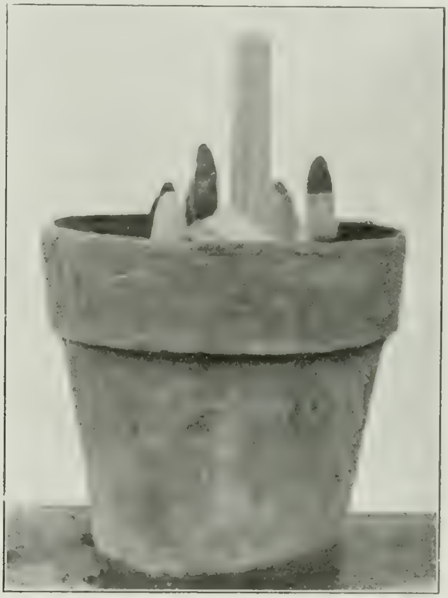


Pot of bulbs showing a well-developed root system.

How to Pot Bulbs.—Place drainage in pot first, then fill in about half full of soil, press the soil down firmly. A little sand under each bulb will help root development. The bulbs should then be placed in position so that the apex or top of the bulb is about an inch below the top of pot or box. Then fill in level full with soil, and press the soil down around the bulbs carefully until surface of soil is half an inch below the top of pot or box. This allows space for water. The top or apex of the bulbs should be just under the surface of the soil when finished potting, and the surface of the soil quite level.

After Care and Treatment.—The bulbs should be well watered at once so as to moisten all the soil, and the pots stood away in a cool dark place. A dark, rather cool cellar with a temperature of about 45 deg. or 50 deg. is a good place for them. The pots are best covered or buried in sand, light soil, or coal ashes.

The covering should be packed around the pots so as to fill all spaces and cover them about an inch in depth when finished. If this covering is dry, it should be watered. The pots should stay here until a good root system has developed. It will take from three to four weeks or longer to secure good roots. One of the main points to secure success with bulbs is to secure good root development before top growth has started much. Usually on examination the roots can be seen protruding through the aperture in the bottom of the pot after they have been buried three or four weeks as stated. When this is the case the pots should be taken out of the sand or soil covering and brought out into the light, or into the window for flowering purposes. The pots should not be allowed to stay in the sand covered up after top growth is about two inches in height. If no cellar is available to start the bulbs in, they can be placed in a dark cupboard to root, or even covered up closely in a box, in a cool room. In growing bulbs the soils should never be allowed to become dry from the time they are potted until they are out of flower. The roots of bulbs also should never be disturbed much after they have started. Bulbs grown indoors are seldom of any use to grow again indoors. Dutch Hyacinths, Narcissus and Tulip bulbs may be allowed to stay in the pots and be dried off gradually when through flowering, until quite dry, when they should be kept dry until summer and planted out in the border rather thickly in groups. If left undisturbed after planting, they will likely give good flowering results the second season, and for an indefinite period afterwards. Narcissus usually give the best results treated in this way. Roman Hyacinths are of no use to plant out of doors as they are not hardy. They make splendid bulbs, however, for pot culture only.

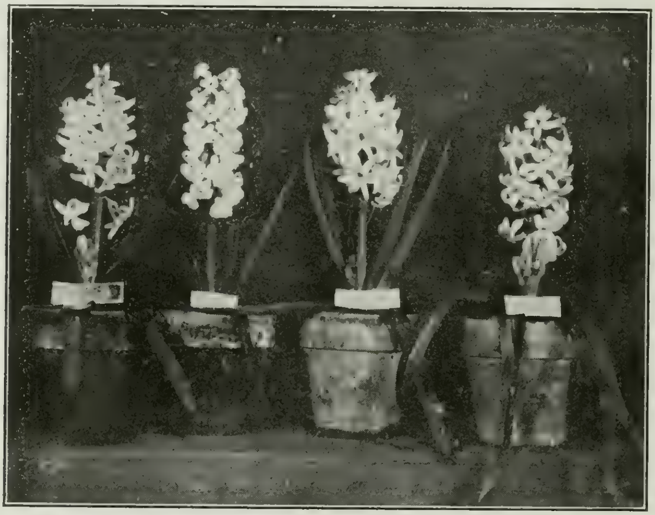


Pot of Narcissus or Daffodil. The top growth shows when pot should be taken out of sand in cellar.

Chinese Sacred Lily.—These are types of tender Narcissus only suited to indoor culture. They succeed best grown in rather coarse gravel in deep saucers or dishes. A deep porridge saucer suits them very well. It is best to start these early in the season as the bulbs do not keep well late in the season.

How to Grow.—First place the bulb in position in the centre of the dish, then fill the saucer full of gravel, so as to support the bulb firmly in position. Fill the saucer with water and place it away in a rather cool dark cupboard or take it down into the cellar and cover it with a box to keep it dark. Keep the saucer filled up with water. In about three or four weeks the bulb should have made good roots and the top started to grow. It can then be brought into the window into full light gradually. The Chinese Sacred Lily is of no use to plant or grow again when grown in this way. The bulbs can also be grown in soil pots as first described, or in sand or moss, but do not succeed as well, as a rule, as when grown in gravel.

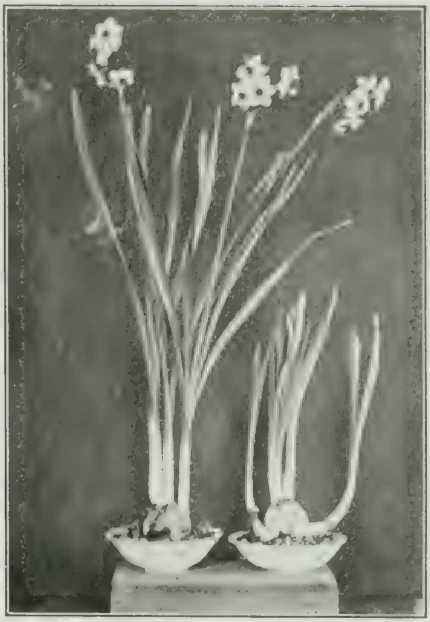
Dutch Hyacinths.—These also can be grown in proper hyacinth glasses in water. The glasses should be filled with rain or soft water so that when the bulb is placed in position the water will barely touch the base of the bulb. Place them away in a dark cupboard or cellar for four or five weeks or longer, or until a good root system has developed. When the roots reach the bottom of the glass bring the bulbs into the window to flower. Keep the glass filled up to the base of the bulb with water as required. Growing these bulbs in gravel or in water as described is a very interesting procedure. The best quality bulbs in all cases, more especially when grown in water, must be used to secure the best results.



Single White Dutch Hyacinth. No. 1, on left, Paix de la Europe; No. 2, La Niege; No. 3, La Grandesse; No. 4, Queen Victoria.

When to Pot Bulbs.—Bulbs for winter flowering may be potted at any time from the end of September until Christmas or later. Late potted bulbs do not, however, give as good results as those potted earlier. October is really the best time for potting bulbs. If they are not potted early they should be kept in a very cool room or cellar until they are potted, or they will lose much of their vitality, and will not produce good flowers. It is best to pot them not later than the end of October and take them out of the sand when well rooted, and keep them in a cool place in the cellar until wanted to be brought into the window to flower. With careful management in this way, a succession of bloom can be had from Christmas until Easter.

Pot of Narcissus, "Trumpet Major," Golden Yellow. Three bulbs in a five-inch pot.



Chinese Sacred Lily, growing in a deep saucer in gravel; showing plant just taken from a dark cupboard and later on in flower.

Single Dutch Hyacinth, "La Blanche," showing four flowering spikes to one bulb. One bulb in a pot.

Single Dutch Hyacinth (Blue and Purple). No. 1, on left, "Leonidas"; No. 2, "Wm. 1st"; No. 3, Grand Maitre; No. 4, Chas. Dickens.

CARE OF HOUSE PLANTS FOR WINTER FLOWERING.

WM. HUNT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

RE-POTTING PLANT: House and window plants, such as Palms, Ficus elastica (Rubber Plant), Cordylines, Asparagus plumosus (sometimes wrongly called Asparagus Fern), Asparagus sprengerii, Boston Ferns, Callas (Richardia Ethiopica), and similar plants, should be re-potted about the end of August if pots have become full of roots and the soil exhausted. Plants that require it can be re-potted at any time during winter, if proper soil can be obtained, but the late summer months are preferable for re-potting window plants, as a rule. Nearly an inch of drainage matter, such as broken flower pot, coarse gravel, coal cinders, or lump charcoal, should be placed in the bottom of a six or seven-inch pot. A good potting soil for these plants can be made by mixing one part fine clean pit sand, one part leaf mould or black soil from the bush, one part dry cow manure powdered fine, and five or six parts of light loamy soil from the garden or elsewhere. Sod that had been taken from loamy soil and allowed to rot with one-fourth part of dry cow manure or well-rotted barnyard manure, one part sand, and one part leaf mould added and mixed together, would be still better for the plants. In re-potting, about one-third of the old soil, as a rule, should be moved from around the roots. Use a one or two size larger pot than the original; avoid using too large a pot in repotting. Pack the soil fairly firm around the roots so as to leave no air spaces. A narrow, thin strip of wood or shingle can be used to advantage sometimes in packing the soil around the roots. After potting, water the plants well once, then keep soil moist but not soddened, until growth has commenced. Shade the plants for a week after re-potting and sprinkle overhead with water daily. Stand them in partial shade in hot weather. Take the plants into the house about the first week in September before the nights get too cool.

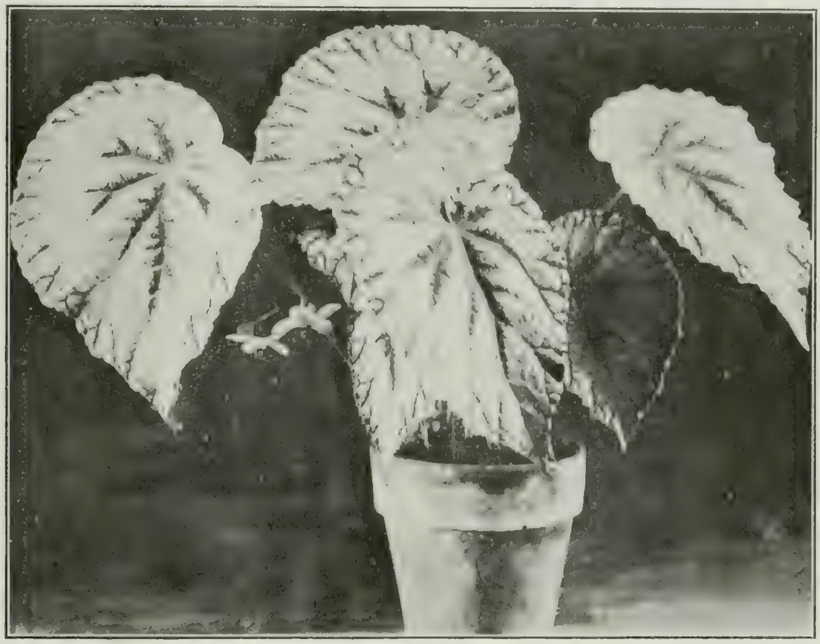
WATERING PLANTS. Water pot plants only when they need it, then water them thoroughly. When the soil begins to get dry and powdery on the surface, or when the pot is tapped with the fingers and it emits a ringing sound, the plant requires water. Then give sufficient water so that it runs out through the bottom of the pot, withhold water until needed again. Giving a little water every day, or at any stated interval, is not the way to water plants. Use tepid rain water or water that has been exposed to air and sun if possible for a day or two. The water should be just lukewarm, about 50 degrees or 60 degrees. Never use ice cold spring water for plants in winter. Warm water may be used to mix with the cold to bring it to about the temperature named.

VENTILATION. Give air from top of window or from an adjoining room. Avoid cold draughts of air on plants. Ventilate only on mild still days. In late fall, early winter, or in spring, plants may sometimes be stood out for an hour or two on calm, mild, showery days, but the temperature should be at least 65 degrees outside.

MOIST ATMOSPHERE. This is one of the main points to be successful with plants. Place pans or saucers of water on the heaters or registers. As this evaporates it causes a moisture very beneficial to plants. Saucers of water placed under the plants are also beneficial, or a steaming kettle or pot on the stove is a great help in this respect.

SPRAYING PLANTS. Glaucous or glossy-leaved plants such as Palms, Rubber Plants, Boston Ferns, Callas, etc., should have the leaves sponged with clear water once every week, with an occasional spraying at the sink. This should be done on fine warm days, if possible. Hirsute or rough-leaved plants, such as the Rex Begonia, Gloxinias, etc., should not be sprinkled over the foliage. One of the best appliances for spraying plants is "Scollay's Rubber Sprinkler," having a bent or angle nozzle so that the under side of foliage can be easily reached.

FERTILIZERS. When the pots become full of roots and the soil worn out or exhausted, a little fertilizer can be given them. The soil should be moist, not dry or very wet, when fertilizer is applied. There are several good plant foods sold at large seed stores. "Sterlingworth Plant Tablets" or "Bonora" are both good. The first named costs ten cents for a small box, sufficient for a good sized collection of plants for the whole winter. Bonora is twenty-five cents a small tin. The last named is the best fertilizer for pot plants that I have tried, for amateur work. Half an ounce of nitrate of soda dissolved in one gallon of water also makes a good fertilizer for pot plants. About half a teacupful of this fertilizer every two weeks for a plant in a six-inch pot will be sufficient. Begonias and Coleus must not be given too much fertilizer. Geraniums and Chrysanthemums will bear a larger quantity. Fertilizers should be applied when the soil the plants are in is moist, not when it is very dry, or when soddened with water.



"Rex Begonia." These plants should not be sprayed overhead very much.

INSECT PESTS. The spraying with water will help keep these down, especially if the water is applied to the under side of the leaves. Insect pests increase and thrive best in a dry, warm atmosphere; they do not like moisture. For aphis or green lice, red spider and thrip, Sulpho-tobacco soap is a good remedy. This costs ten cents a packet at seed stores. Soapy water, or a solution of whale-oil soap and tobacco water are also beneficial. Smoking the plants with tobacco will also keep down insect pests, especially green and black aphis. Care must be taken not to burn the plants. Smoking or fumigating with tobacco is risky and unpleasant in a dwelling house. Much can be done to help keep down aphis with the smoke from a pipe or cigar, if care is taken not to burn the plant. For scale insects, wash well with soapy water, using a small brush to remove the scale if necessary. In making soap solutions, use either whale-oil soap or common household soap. Chemical soap preparations are dangerous to the plants. Wash with clear water shortly after using soap solution. Apply solution to under side of leaves of all plants, as it is the under side of the leaves that are more often infested with insect pests, more especially with red spider and thrip. The "Scollay Rubber Sprinkler" with angle nozzle is also useful for applying liquid insecticides to plants, as well as for spraying them with clear water as before mentioned. It can be purchased at seed stores.

Pompon Chrysanthemum, "Snowdrop." A good variety for pot culture.

Frozen Plants. If plants should unfortunately be frozen, it is best to remove them at once from the window and stand them away in a dark, close room or cellar, in a temperature of about 40 degrees or 50 degrees so that the frost may be drawn gradually from the plants. If the plants are badly frozen, they may be sprinkled with cold water. Do not use warm water on any account. If a dark room is not available, cover the plants with a thick, woollen rug or blanket. This must not be allowed to touch the plants. The leaves of frozen plants should never be touched until the frost is out of them. The plants should be kept in the dark for about twenty-four hours. Bring them out into the light gradually. Avoid giving them too much water at the roots for a time. Keep the soil only barely moist, not soddened. Too much water at the roots for a time after plants have been frozen will often kill them. The hot sun is also bad for them, until they have quite recovered. If not too badly frozen, plants can often be saved by the treatment mentioned.

The following are lists of good house and window plants.

Flowering Plants for the Window.

Geraniums.—Single and semi-double flowering; single flowering varieties best for winter.

Geraniums.—Ivy-leaved, Silver, Bronze, and Fragrant-leaved varieties are especially effective as window plants.

A well-grown Geranium plant.

Begonias.—B. argentea guttata, B. manicata aurea, B. Otto Hacker, B. Thurstonii, B. rubra, B. Paul Bruant, and other varieties.

Primulas.—P. sinensis (Chinese primula), B. obconica.

Fuchsias.—Single and double.

Calla.—(Calla Lily), Richardia Ethiopica.

Chrysanthemums.—Pompon and Japanese varieties.

Impatiens Sultani.—(Bloom for Ever.)

Lilium Harrisii (Easter Lily).—Lilium auratum, Lilium speciosum rubrum, etc.

Ephiphyllum.—(Lobster or Christmas cactus.)

Tuberous-rooted Pegonias.—Single and double.

Pelargonium.—(Lady Washington Geranium.)
Freesia refracta alba.—(Bulbs with sweet-scented flowers.)
Valotta purpurea (Scarborough lily).—Bulb.
Amaryllis in variety.—(Bulbs.)
Otaheite Orange.—(Flowers, fruit and foliage are attractive.)
Winter flowering Bulbs.—Roman and Dutch Hyacinths, Narcissus (Daffodil) in variety. Tulips, single and double, early flowering.

Begonia argentea guttata. One of the best window begonias.

List of House Plants (Foliage).

SUITABLE FOR WINDOW AS WELL.

Anthericum vittatum variegatum.
Anthericum picturatum.
Araucaria excelsa (Norfolk Island Pine).
Asparagus plumosus.
Asparagus sprengerii.
Aspidistra lurida variegata.
Dracena indivisa } Cordyline.
Dracena australis }
Farfugium grande (Leopard Plant).
Ferns, Nephrolepis Bostoniensis (Boston Fern).
" " Whitmanni.
" " Scotti, and other varieties.
Ficus elastica (Rubber Plant).
Palm, Kentia Belmoreana.
" " Forsteriani.

Palm Phœnix rupicola.
" " reclinata.
" " dactylifera (Date palm).
" Latania Borbonica (Fan Palm).
" Cocos Weddeliana.
Pandanus Veitchii.
Sansevieria zeylanica (Bow string hemp plant).

OUTDOOR CULTURE OF HARDY SPRING FLOWERING BULBS.

Wm. Hunt, Lecturer in Floriculture, O. A. C., Guelph.

There is probably no class of plants that gives more satisfaction and that is more thoroughly appreciated by the flower lover than a collection of spring flowering bulbs, flowering as they do from quite early in the spring, even before the winter covering of snow has entirely left us, until well on into the early months of summer, before but very few of the other border plants are in flower.

Darwin and Bitzarre Tulips. Very effective for late flowering and for permanent planting.

Location.—Bulbs are best planted where there is good drainage and where no surface water lies in winter or early spring. When planted in masses or beds it is best to have the soil in the centre of the bed a few inches higher than the margin so as to pitch the water off readily. Bulbs succeed best planted in an open situation and not too close under buildings or under the dense shade of trees. For the later flowering kinds of bulbs, however, that flower about the end of May, such as the Darwin type of Tulip, a little shade prolongs the length of the blooming season considerably.

SOIL.—The best kind of soil for bulbs is a moderately rich, light loamy soil. They will succeed fairly well in a sandy soil, but do not give as fine blooms as in soil of a loamy nature. If the soil is of a clayey nature, dig in some sand or black soil from the bush, or both, to lighten it. Fresh, strawy manure should never be dug into the soil when planting. If manure is applied at planting time it should be well-decayed barnyard manure, almost the nature of the soil itself. Even then it should be dug in an inch or two underneath the bulbs so as not to come in direct contact with them.

WHEN TO PLANT BULBS.—The best time for planting out-door bulbs is about the second or third week in October, although bulbs may be planted until the ground is frozen over for the winter, even as late as the end of November or early in December. Later planted bulbs do not, as a rule, however, give as good results. The soil should be thoroughly dug and raked fine before planting. For planting temporarily in beds or borders where summer flowering plants, such as Geraniums, Coleus, Cannas, etc., are to be planted, early flowering Tulips, Dutch Hyacinths, Crocus and Snowdrops are the best kinds to plant. For more permanent planting, where the bulbs can remain year after year without being disturbed, the kinds already mentioned can be planted, as well as the different varieties of Narcissi or Daffodils, and Cottage Garden, Darwin, Bitzarre and Parrot Tulips, all of the last named are very effective for permanent planting. Chionodoxas (Glory of the Snow), Leucojum vernum (Snowflake), and the early flowering Scillas, with their bright blue blossoms, are very effective and pleasing in early spring. The four last named, as well as the Crocus and Snowdrop, are dwarf-growing bulbs and are best planted near the margin or edge of the flower bed or border. The crocus is very suitable for a margin or fringe around beds of Dutch Hyacinths or Tulips, or they can be planted in small groups, from twelve to twenty bulbs in a group, near the margin of the border.

"Chionodoxa Lucillae" (Glory of the Snow). Dwarf growing bulbs, having pretty blue and white flowers that come very early in spring.

DEPTH TO PLANT.—All of these smaller growing bulbs before named should be planted from two to three inches in depth and quite thickly together, an inch and a half to two inches apart, to give good effect. The Tulips and Narcissi grow about twelve to eighteen inches in height and can be dotted in masses or blocks in flower beds, or in small groups more towards the back of a perennial border. They are also very effective planted in groups among or around shrubs. Tulips and Narcissi should be planted about four inches under the surface of the soil and about six inches apart. A group of these planted in a circular or oval shape fifteen to twenty inches in diameter, especially Narcissi, has a very pleasing and bright effect early in spring, dotted here and there over the perennial or mixed border. The Fritillarias or Crown Imperials are taller growing, being about two feet in height, and look very pretty planted two or three or more in a group toward the back of the perennial border. The bulbs of these last named should be planted five or six inches under the surface. It is best to place a small stick or label where bulbs are planted so that they may not be disturbed when any early spring or fall planting is done in the perennial border.

TRANSPLANTING.—It may be necessary to dig up, divide and transplant less thickly the clumps of Tulips and Narcissi after they have been planted five or six years or longer, as they lose vitality and do not flower as good if clumps get too matted and thick. This transplanting should be done about the end of July, before the bulbs commence to root. Almost all of the different varieties of Narcissi are useful for permanent planting.

PROTECTING BULBS IN WINTER.—All newly-planted bulbs, especially late-planted ones, are best protected during winter, as it prevents the bulbs from heaving or lifting. Long, strawy manure, straw, or coarse grass, about three or four inches in depth, makes a good winter covering. Green pine boughs laid over the manure prevents unsightliness. Pine boughs alone make a good winter protection. Dutch Hyacinths, especially, need some protection in winter as they are not as hardy as Tulips and Narcissi. The covering should be taken off about the end of March or early in April, when the weather has become settled. Remove the covering, part at a time, taking away the wet underneath part first and replacing an inch or so in depth of the lighter part for a week or ten days until top growth has become hardened to the weather, as the hot sun is often as injurious to early bulb growth as late spring frosts if exposed too suddenly.

TEMPORARY PLANTING.—This method of planting has of necessity to be adopted in flower beds or borders where summer flowering and foliage plants, such as Geraniums, Coleus, etc., are planted for summer decoration, if the last named are to be effective. Planting deep rooted plants as mentioned for summer effect where bulbs have been growing is not a success, unless the bulbs are dug up and the border thoroughly dug, manured, and the bulbs removed. It is best to leave the bulbs as long as possible—about the end of May—before digging them up. Dig them carefully with tops on, and heel the bulbs in a shallow trench about four inches deep. The bulbs should be covered with about two or three inches of soil. They can be put quite thickly in the trench. Any out of the way corner of the garden will do for heeling the bulbs in. Put a stick or label to mark the spot. About the end of July the bulbs should be dug up again, dried a little in the sun and placed away in shallow boxes in a cool room or cellar, until planting time in October, when the best of the bulbs can be replanted in the flower bed for flowering again next season. Bulbs can be used two or three seasons for temporary planting if treated in this way. Be sure to dig them up the second time and dry them about the end of July. If allowed to stay until planting time where they are heeled in they will commence to root and grow, and if moved after root growth has once started they will be of little use. Bulbs should not be disturbed at the roots when once they have started into growth.

SEED HEADS.—The seed heads should be cut off from the bulbs as soon as the flowers have dropped. If left on they weaken the bulbs materially.

The following are some of the best species and varieties of bulbs, both for

TEMPORARY AND PERMANENT PLANTING.

Temporary Planting:

Single and double Dutch Hyacinths in variety.

Early flowering single and double Tulips. A few of the best single varieties of Tulips are: Keiserkroon, red and yellow; Joost von Vondel, crimson and white; La Reine, white and rose; Pottebakker, scarlet; Cottage Maid, white and rose; Pottebakker, white; Belle Alliance; Mons Tresor, yellow.

"Scilla sibicica." A dwarf dark blue early spring flowering bulb.

Double Tulips.--Alba maxima, white; Couronne d'Or, golden yellow; La Candeur, pure white; Murillo, light pink; Rex rubrorum, scarlet; Duke of York, purple and white. The double flowering varieties are usually a little later flowering than the single kinds. A mixed bed of several kinds, single and double, is very effective and gives a display of flowers for some time.

Crocus and Snowdrops make good dwarf growing bulbs to be used as a margin or edging around Tulip and Hyacinth beds, and can be dug up, as before mentioned, with fairly good results every year.

Permanent Planting:

All of the varieties already mentioned are more or less useful for permanent planting.

Some of the best varieties of Narcissi are: Bicolor Victoria, Bicolor Empress, Emperor, Trumpet Major, Princeps, Golden Spur. These are trumpet varieties. Of the cup varieties, the Poeticus (Pheasant Eye) and Poeticus ornatus are the best for permanent planting. Clumps of the two last named have been known to grow and flower well for twelve or fifteen years without being disturbed. Other good cup varieties are Sir Watkin, Mrs. Langtry, Stella and Barri conspicua. All of the Narcissus are good for permanent planting except, perhaps, the Paper White and Chinese Sacred Lily. These do best grown indoors for winter flowering. The Jonquils, also, are very sweet types of Narcissi for the border and are enduring as well.

Chionodoxas (Glory of the Snow), Scillas and Leucojum vernum (Snowflake) give excellent results and are of a permanent nature. Their attractive blossoms can often be seen peeping up through the snow-clad ground very early, bright harbingers of the coming welcome spring and summer time.

There is an almost endless variety of Narcissi and Tulips for the amateur to select from, all of which have some distinguishing characteristic of form and color that make them so desirable in the borders in early spring. Those I have named are some of the hardiest and best known. The bulb catalogues issued every autumn by our principal seedsmen give lists and particulars regarding the different varieties of these showy, useful spring flowering bulbs.

THE VALUE OF CHEESE IN THE DIET.

Mrs. C. H. Burns, Toronto.

The present high price of living is, to many of us, a serious problem. We are, as housekeepers, confronted with the problem of how to supply to our families substantial, nourishing meals at a reasonable and often at a very limited cost.

It is to these housekeepers who are endeavoring to supply meals that will meet all the needs for proper growth and development of the body, and at the same time to supply these meals at as small a cost as possible, that I would like to interest in the subject of cheese as a food, and the advantages to be gained by a more general use of cheese in the diet.

It may be a surprise to many to learn just how many varieties of cheese there are. According to a bulletin recently issued by the United States Department of Agriculture there are two hundred and forty-five (245) known varieties of cheese. They include cheeses made from goats' milk, sheep's milk, and reindeer milk in many countries of the world.

Cheese as an article of diet is a food that is much neglected. It has seldom been regarded by consumers as a possible cheap staple food. Most consumers of cheese use it as a luxury in small quantities, and then only at rare intervals.

To understand the value of cheese as a food we must first consider what demands the body makes upon food, and see if cheese will supply these demands. Then we must find if it can supply these demands at a minimum cost.

Firstly then, we know that there must be foods that provide for bodily growth and development and for repairing the worn out tissues of the body. That is, there must be tissue-building foods, otherwise spoken of as proteids. There must also be foods used as heat and energy producers. As I do not wish to go deeply into the classification of the nutritive constituents of foods, I will simply state that fat is a heat producer, and a valuable food constituent; therefore, if we find a food that is well represented in tissue-building principle and fat, we know we have two of the chief food principles that are essential to the diet.

Now meat is the chief source of our tissue-building food. It forms 30 per cent. of the total protein supply and 59 per cent. of the fat in the average diet to-day. The food value of meat in fat and tissue-building principles is valuable, but at the same time it is costly food when compared with some other foods that can supply these same valuable food principles at a smaller cost.

If we look at the composition of cheese, we find that cheese contains approximately one-third per cent. of the tissue-building principles, one-third per cent. of fat and one-third per cent. of water. The comparison of the food value of cheese with that of other tissue-building food materials is of interesting value.

No kind of fresh meat carries such a large percentage of tissue-building materials as cheese. Cheese yields per pound, twice as much tissue-building material, or protein, as fresh meat. That is, by experiment it has been found that one pound of cheese has nearly the food value of two pounds of fresh meat, or that one pound of cheese equals two pounds of eggs in food value. Also one pound of cheddar cheese represents the total casein, or tissue-building material, and most of the fat in one gallon of milk.

Conclusively then, we recognize the importance of cheese as a tissue-building food.

The number of different kinds of cheeses that are manufactured all over the world, prove without doubt, that there are nations that realize the true worth of cheese as a food. No doubt we all have read of the hardy Swiss peasants, whose chief diet is composed of bread and cheese, a parmesan cheese made from partly skimmed goat's milk, and of the hard working English miners who use cheese, not only as one of their principal foods, but also use it extensively for seasoning.

Many examples could be taken from the different European countries whose labouring class depends largely on cheese to supply the necessary fat and tissue-building principles on their diet.

The Italians years ago recognized the true worth of cheese. They use cheese for flavoring a variety of dishes, having it grated and constantly on hand. Their characteristic dish of macaroni and cheese is becoming more popular among our own people, because we are realizing what an attractive and appetizing dish it is when well prepared. We would profit considerably if we would take a lesson from the European nations in the various ways of utilizing cheese in our diet.

The nature of cheese depends on the kind of milk from which it is derived, which in the majority of cases is cow's milk; and also according to the degree of pressure employed in squeezing to remove the whey. High pressure results in producing a hard cheese, viz., our Canadian and the American cheddar cheese, and also some of those made in foreign countries. While a lower degree of pressure produces a soft cheese. Amongst the soft cheeses are Camembert, Limburg, Brie and Cream, and a few others. The soft cheeses do not keep well and are intended for immediate consumption.

After the cheese is made it is put away to ripen. The length of time for ripening varies, usually from a few months to a year, great care being used at this time as to the proper temperature to be maintained throughout this period. The flavor in cheese is produced during this ripening period.

Two agencies are the chief cause of ripening, viz.: microbes and ferments. The microbic action is most varied, and on it probably depends the peculiar tastes of the different cheeses. In our Canadian and American cheese there is not such a great variety of flavors as there is in the foreign manufactured cheese.

But it is not of the foreign manufactured cheese or of the rare and expensive cheese about I wish to write, but of the cheese that is manufactured and universally used on our own continent, namely, the Canadian and American cheese

It was my privilege to visit the Dairy Department of the New York Experiment Station at Geneva, New York, and to learn something of the differences between our Canadian cheese, and the cheese made in the United States. I was told that cheese-making is geographically limited: while a great deal of cheese is made in Canada, it is made in the Northern States only.

Cheese-making is a growing industry in both Canada and United States, but there is considerable difference between the cheese made in the two countries, inasmuch as our Canadian cheese is more concentrated. It has one-third more nutriment than American-made cheese. It is, therefore, a cheese that is better for flavoring than the American cheese, and, being more concentrated, has more food value to the pound. A concentrated cheese is a little more difficult to digest, but this difficulty can be overcome by grating and mixing the cheese with other foods.

The American or Cheddar closely resembles our Canadian cheese, but it is a milder cheese and not so concentrated. In the United States there is a great quantity of very mild cheese made, some containing as much as 50 per cent. water. This cheese finds a ready market, because the majority of people have not cultivated a taste for the stronger and well ripened cheese, and because of the high percentage of water it contains it is not so concentrated a food. Under these conditions a person can consume a much larger quantity without feeling any ill effects.

When buying cheese with a large percentage of water, we must take into consideration that we are not paying all our money for the valuable food principles as much of the weight will be water, and, if the price per pound is the same, a concentrated cheese will yield more food value to the pound than a cheese with such a large percentage of water.

The next question of importance to housekeepers is whether cheese can be obtained at a reasonable cost.

If cheese is to become a cheap substitute for the more expensive tissue-building food, it is of the greatest importance what variety of cheese is bought.

Through experiment one valuable result has been in showing the great value as food of all the more common varieties of cheese. We know that cheese with special flavors command a higher price: this is so regardless of the fact that they do not contain any more of the valuable food principles than the cheaper cheese. Therefore, if economy is to be the keynote of our culinary efforts, we must choose cheese not altogether by its flavor, but by its cost.

The numbers of cheese dishes that are given in our best and reliable cook books show us the possibilities of acquiring knowledge in this line that will prove of inestimable value to the housekeeper who appreciates the importance of serving a fundamental food in a variety of ways.

In America cheese is mostly eaten without any preparation, and we are too accustomed to using partly ripened and mild flavored cheese to realize the use and value of well ripened and highly flavored cheese for flavoring purposes.

Recent investigations have shown that cheese when properly masticated is not indigestible. It can be eaten in fairly large quantities without danger to health, as proved by experiments reported in recent bulletins, that there was lack of any disturbance of the general health. Cheese can be still more easily digested if it is grated, or the grated cheese dissolved and mixed through some other form of food.

In view of the foregoing comparisons of the food value of cheese, and because cheese has been proven to be healthful, as well as a cheap source of tissue-building food; we wonder why there is not more of a demand for cheese, especially among people of limited means. Those who need to practise economy in buying food would do well to turn their attention a little more towards cheese, since a greater quantity can be used at saving to the consumer.

My article on cheese has not entered into technicalities, as that would be beyond its scope. I have endeavored to show that price has nothing whatever to do with the food value of cheese, the cheaper cheeses being fully as nutritous as the more expensive ones. I have also tried to give, in simple language, some idea of the food value of our more commonly used and cheaper varieties of cheese, and of the value of cheese in preparing wholesome and palatable dishes.

My purpose then, in writing this article, is that it may be an incentive to those housekeepers who wish to economize to look into the subject of the place cheese may take in the diet, as a legitimate means of cutting down culinary expenses, and, at the same time, enable them to supply the necessary food principles in nourishing and substantial meals at a reasonable cost.

EXTRACTS FROM AN ADDRESS.

By Miss R. MacAdams, Edmonton, Alberta.

It is a great pleasure to welcome you to the first short course in Domestic Science ever held in the province of Alberta. I think you will agree with me that the addition of Domestic Science to the curriculum of the short course schools in Agriculture is significant; it denotes a recognition of the woman's problem by the powers that be. It shows that our Government realizes that the progress of the country depends quite as much upon the best care of its citizens as upon the breeding of a good stock of cattle, sheep or swine.

It sometimes seems to me that the woman's problem is the bigger one, the more complex. While the man goes out and earns the living, it is usually the woman's part to so expend his earnings that they may yield food, shelter, clothing, and a supply of mental food and raiment, perhaps in the form of books, education, travel, or beautiful home surroundings, what may be termed provision for higher life. What value is secured, you see, really depends upon the wisdom and capacity of the woman. Surely, then, every housekeeper requires all the advice and assistance which Domestic Science can bring to her.

At the outset, I think I must correct a misapprehension that may exist, which I have found to exist elsewhere, concerning the term Domestic Science. It seems to arouse doubts in practical minds, to suggest a something which must be learned from books and in laboratories, and which bears little relation to actual everyday housekeeping. But, if we will take the trouble to analyze it, we shall see that the term itself corrects this. We all know the word "Domestic" pertaining to the house or home. Perhaps it is the word "Science" which excites suspicion, yet Science merely means the knowing, knowing how and why, and probably every one of us realizes that housekeeping requires a great deal of knowing *how* and knowing *why*. Usually we get this knowledge, if we get it all, in the slow and painful school of personal experience; but, if we can get it a little more quickly and easily by a definitely arranged course of study, if we can profit by the investigations and experiences of others, surely it is an advantage. That is what Domestic Science stands for, the simplifying of household problems through the understanding of fundamental laws.

In the brief time which we are to have with you no extensive course can be undertaken. We have therefore planned only a series of simple cookery demonstrations which will exemplify important principles. We hope also to touch upon the proper selection and care of food, well-balanced food combinations and suitable serving, for all these are rightly included in the cookery branch of the great profession of the homemaker.

Some other branches of equal importance may perhaps be appropriately brought to your notice here. Having seen to it that your household is supplied with a sufficient portion of nourishing food properly prepared and served, you must, if you are careful for their welfare, make equally sure that every member is receiving his fair share of pure fresh air. The best food in the world will not make good red blood unless the lungs are fed with a plentiful supply of oxygen. There should be no foul air difficulties in this big open country, but, when the mercury drops low it requires some resolution to open a window. However, it is worth bearing in mind that fresh air is more easily heated than spent air, that ventilation really economizes fuel. The next health essential is pure water. Everyone one of you should know what is the source of the household water supply. If you are using well water, make sure that there is no stable or house pollution, no typhoid or other disease contamination.

The three life forces previously mentioned are of paramount importance,—good food, pure air, and pure water. Next come proper clothing, personal cleanliness, and sunshine. Personal cleanliness must be insisted upon: clean skins, clean finger nails (under the nails there is an ideal lurking place for disease germs to be presently conveyed to the mouth), and clean teeth (at least fifty per cent of all stomach troubles are caused by neglected teeth). The purifying effect of sunshine should not be forgotten; let it pour into every nook and corner with its disinfecting powers that it may overcome and banish your three arch-enemies,—darkness, dampness and dirt.

Then, having given thought to these material things, see to it that the mental and moral atmosphere of your homes is pure and fresh and sweet; diffuse the sunshine of your personal influence. To do this you must keep yourself at your best. The woman who is utterly worn out with housekeeping cares and labors has little to give to those who look to her for comfort and cheerfulness and sympathy. When the work of the house becomes overwhelming, there is only one thing to do: simplify your living, thoughtfully systematize the daily tasks, and reduce the routine to habit, then dispense with everything non-essential (and this requires an ability to recognize the real essentials), use every labor-saving device, reserve some time for rest, and some energy for outside interests, for recreation and enjoyment. Let your interest grow in the big questions which affect the public good, and you will find your influence within the home deepening and broadening; and woman's influence counts for so much. It is a well-known fact that the mental and moral standards of any country are the standards of the homes, that the standards of the homes are the standards of the women. Do you see what that means? Here is this province on the verge of a greatness the possibilities of which no one may venture to limit. The man and woman who are largely to influence and control its destinies are growing up in your homes; you are responsible for their physical welfare; you have also the moulding of their characters, the direction of their tastes and desires. Your responsibilities are enormous; your opportunities are unlimited. If you are using them to develop a people, strong physically, clear mentally, clean morally, happy-spirited, with broad interests and high ideals, you are faithfully practising the profession of homemaking, you are doing the kind of housekeeping which everyone acknowledges is really worth while.

THE BABY ON THE FARM.

Dr. Helen McMurchy.

(From "Farmer's Magazine"—by permission of Publishers.)

O, Child! O, new-born denizen
  Of Life's great city. On thy head
  The glory of the morn is shed
Like a celestial benison!
Here at the portal thou dost stand,
  And with thy little hand
Thou openest the mysterious gate
  Into the future undiscovered Land.
—*Longfellow.*

There is a baby coming to some of our Canadian farms this Christmastide. He knows what he is about, that baby. Christmas is a good time to come. And a Canadian farm is a good place to come to.

The little sacred, soft head, pillowed on its mother's breast, for the first time, near Christmas Eve, seems, if possible, more sacred than when it comes at any other time. The mother keeps all the things about that baby and ponders them in her heart, like the Mother of long ago. For "The Sign was a Child."

Born on a farm. It is *the* place to be born. Take all the members of Mr. Borden's Cabinet and ask them where they were nursed, and see if the majority of them, like the majority of city men everywhere who have "done things," do not tell you about the farm where they were born. There is better air on the farm, and more quiet, and cleaner milk, and other fine things too numerous to mention.

"They went to another cosier cave when the baby came," as Kipling said about the cave-dwellers. And these ancient Troglodytes were right. The baby is a great civilizer. Things that will do before the baby comes will *not* do when his coming draws near. The baby's mother and the baby's father have a right to

Jessie Helen's father is a farmer, too. As bright as a dollar. A face line that always betokens good nature.

These are doing as well as they can on a city street, but how much better would they be rambling over a farm.

think more of themselves and have things more suitable and comfortable than before the baby came. They have a family now. The baby is a powerful constructive force. He can unite those whom nothing else will keep together. God Himself needs the baby's tiny hand to hold people together. Many good things are not worth while except when there is a baby to do them for.

Winston, at two years, has that vitality that comes from fresh air, plenty of milk and the joys of out-of-doors.

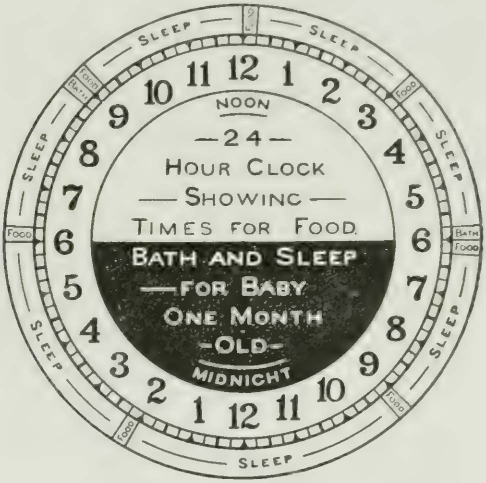
It is one grown person's work to look after a baby. And yet, if you understand the business, it can easily be done. The baby is a great worshipper of system. Start him right, and he will go on as regular as the clock.

Here is the baby's clock—for one month old and for five months old. The clock was made in New Zealand, and is warranted to go.

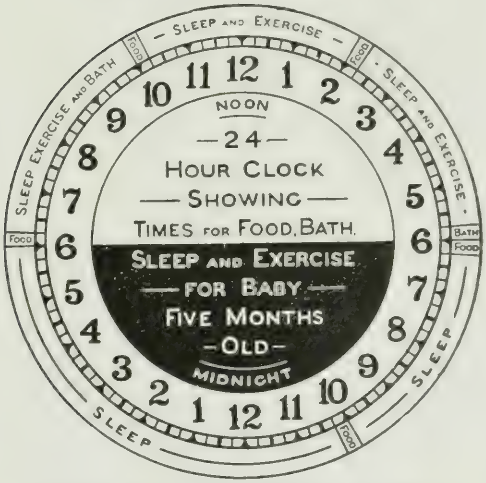
The baby knows what to do, if put to the breast within two or three hours after birth. That is the most important event (after being born) in the whole history of babyhood. The baby must nurse well within the first twenty-four hours.

That one event seals his fate. If nursed by the mother, the chances are great that the baby will live. If not nursed by the mother, the chances are great that the baby will not live.

The baby does not need to be fed oftener than once in three hours, and perhaps twice or three times during the night. Two or three days of regular feeding and the baby will wake regularly at feeding times. It will only be necessary to wake him a few times and the clock-like alternation of sleeping and waking to feed will be established. The new-born babe should sleep nine-tenths of the time. Babies who are regularly and properly nursed will sleep soundly and long, digest their food well and be contented and happy. But if the mother is irregular and unsystematic about bathing, dressing, feeding and putting to sleep, the baby is not happy or contented.



Clock for a month old baby.



Clock for a five months' old baby.

Never give a child a so-called "comfort." It should rather be called "torment." It is harmful. It will not help to give the baby "a good constitution."

That greatly-desired boon, "a good constitution," depends largely on the care, skill, patience and common sense employed in nurturing the baby during the first two years.

A lad whose lungs were filled with the ozone from the country.

MEDICAL INSPECTION IN RURAL SCHOOLS.

(From "Canadian Home Journal"—By permission of Publishers.)

A. A. BACKUS, M.D.

Medical inspection and sanitary care of the people is a very ancient custom. The Greeks and Romans were always interested in developing and caring for the body—baths, exercises, massage, special gymnastics for special development were a part of medical science well known before the time of Nero. For the Jews, Moses gave a list of hygienic laws unequalled by any other code in the world.

In many European countries a system of medical inspection for schools has been in force for years. Japan introduced in 1893 medical inspection of schools, and in 1906 had eight thousand four hundred and twenty-four inspectors. Strange to say, the United States have been slow in adopting this measure, and it was not until 1896 that it was established. However, now New York City has the most thorough system of medical inspection of schools in the world.

Toronto—thanks to the good work and energy of Dr. Helen McMurchy—has taken up the work in this province, and other cities and towns are giving the subject serious consideration, while the rural schools are just beginning to think that there is a need, and a great need, for the medical inspection of schools. This is conclusively proved by the statistics of New York. Sixty-three per cent. of all children who enter the schools of that city require medical treatment. In Canada, as yet, we have no accurate information on this subject. But, without doubt, there would be found in our rural public schools at least fifty per cent. of the children needing medical advice and attention.

The parents should attend to this, many say; but the parents do not attend to these things, and the lack of interest in the physical well-being of the growing child is one of the sad and startling conditions in life, whether it is from lack of observation, lack of interest, or a feeling of fatality—"What is to be, will be." The fact is, that, after the child begins to run about and care for itself a little, very serious physical changes can take place in that child without the knowledge of the parents, and a child may be considered dull, stupid, lazy, who is only ill-nourished or suffering from some physical defect, which, if taken early, can be easily corrected, and the activity and brightness, so a part of the normal child, return to it again.

The first thought of the mother, when her babe comes into the world, is for its physical condition: Is it all right in form and health? There is a pride parents display in the well-formed infant which is, unfortunately, often lost in the growing child, and the environment in our homes, whether in country or city, is seldom best calculated for the physical welfare and the growth and development of the girls and boys.

Children acquire, through unsanitary conditions in the home, many physical defects, and, unless those defects are discovered and corrected by proper medical or hygienic care in the earliest stages, the perfect physical development and the best mental development can never be attained.

We have compulsory education, which is a great blessing, and, in addition, we should have compulsory sanitation in our schools, and the compulsory medical care of all children suffering from physical defects, defects which to-day in our rural schools are encouraged by the lack of care in the home and completed by unsanitary conditions of our rural schoolhouses and their out-buildings. Girls and boys grow into men and women, carrying through all their lives the penalty of weak bodies and inactive minds because of the indifference and ignorance in the home and in the school. The teachers, as well as the children, suffer; the remedy is regular and careful medical inspection by capable inspectors.

The medical inspector of a rural school should be an outsider; one who has no wires to pull, and one who has an honest interest in the welfare of the children. There should be special training for these inspectors, and they should be thoroughly familiar with the laws of physical development, as well as with the discovery of disease.

Every practitioner in the rural districts sees daily the frightful neglect of parents in looking after the physical needs of their children: malnutrition in every form, enlarged glands, deformities of the spine, defective hearing, defective vision, defective breathing from adenoid growths and enlarged tonsils, defective teeth. And yet, because of their distance from a doctor, from lack of observation, or from the forlorn hope the children will outgrow these things, no heed is given to correct these conditions either by medical aid or sanitary conditions in home and school.

Probably fifty per cent. of the children in the rural schools are suffering from some physical defect, which, if not attended to during these plastic years of their lives, can never be corrected, and will leave the trail of its malign influence in the mental and bodily conditions so long as life shall last. It is useless to try to educate children who are not in mental or physical condition for education, and the compulsory education of children is futile unless it is accompanied by environments for the physical and mental welfare of the children.

Faulty nutrition is the usual source of all ill-health, and faulty nutrition is brought about, not only through lack of proper nourishing food, but also by unsanitary conditions in the home and in the school. Medical inspection in the rural schools means that all children suffering from physical defects which can be corrected or improved will be put in the way of receiving the attention they require. Dr. Kelly writes: "Under the conditions of the present day, a system of medical inspection of schools furnishes the most efficient methods for obtaining the facts which will enable any community to render the schools the best means for the development of the child and for its preparation to receive the greatest benefit from education." It is astonishing that the public have been so slow in recognizing the value of such a self-evident proposition.

In the rural districts of this province, there are few pauper children; but there are hundreds of ill-nourished children, not from lack of things to eat perhaps, but from lack of nourishing food. Children cannot be expected to grow up properly, unless directed, says Madison Taylor, and the medical inspection of rural schools include supervision of physical training and medical gymnastics. The physical welfare of the child is of so great importance, because it means strong women and strong men. The physical welfare of the child to-day is the physical welfare of the children yet unborn, and the happiness of the human race.

The desired goal of every individual is happiness, and there can be no happiness without health; but, having health, it is easy to be happy, and to accomplish the tasks required with ease and comfort. The public schools of this country have often been accused of overworking their pupils, and some physicians have held this opinion. But when you consider the work accomplished, and compare it with the standard of German and English schools, our children do not have much overwork to complain of. It is not the work, but the conditions of school life in this country; too long hours in our schoolhouses (particularly for the younger children), lack of proper ventilation, bad lighting in the schoolrooms, causing eye strain and headache, improper seating, and consequently twisted and contorted positions of the body, not enough outdoor exercise of the active kind for either boys or girls. However, girls suffer most from the foolish idea they must not play outdoor games, and sit about the schoolroom while the boys are at play.

Dr. Edwin Chadwick, who has made careful researches in the mental growth of children, states that a child from five to seven years is able to attend to one subject for about fifteen minutes, which should be the length of the lesson; from seven to ten years, about twenty-minutes; from ten to twelve years, about twenty-five minutes; from twelve to sixteen or eighteen years, about thirty minutes.

Every minute in school, after the power of attention is exhausted, is given to form the habit of inattention, which is a clear loss to education. That health must suffer is certain.

In 1881 the high school of Cleveland, Ohio, was investigated by authorized medical authority, and it was found that nearly seventy-five per cent. of the girls had left school on account of ill health, or partly so, and that thirty-three per cent. of the boys were compelled to leave on account of physical troubles. *Ill health increased almost uniformly in proportion to the amount of outside study, and inversely to the amount of recreation indulged in.*

The confinement in close rooms, breathing air vitiated by respiration, is bound to lower vitality, and is equally hard upon teacher and pupils. There is no doubt that breathing the vitiated atmosphere of respiration has a most injurious effect on the health. Persons soon become pale, and partially lose their appetites, and after a time decline in muscular strength and spirits. The aeration and nutrition of the blood seem to be interfered with, and the general tone of the system falls below par. Mr. Parkes, in his observations above quoted, might be looking into the average rural school of Ontario as he writes, and it is the breathing of a vitiated atmosphere day after day that makes teachers and pupils worn out and anaemic at the close of every school term.

The medical inspection of schools would necessarily make a great change in the matter of ventilation and exercise for the children. There is a tradition abroad—and like other traditions we believe it without examination as to its truth—that country homes are more sanitary than the homes in the city, and country children stronger. Of course this is as it should be, and in the summer time, perhaps, is so; but in the winter, country homes are not by any means as sanitary and well ventilated as the city or town homes; nor are the country schools in any way to be compared with the sanitary conditions of the schools in city or in town.

To save a present dollar regardless of future contingency is the usual formula. Fox in "Sanitary Examinations of Water, Air and Food," writes: "Unventilated and crowded schools are, moreover, the nurseries of strumous diseases in general, which sap the strength of the community."

The medical inspection of rural schools would not only be of great benefit to the health and welfare of the children, but also a great educational factor concerning the laws of sanitation, which would go far towards establishing better conditions in the homes, better conditions in the schools, and a better idea of health and its preservation. "From labor health, from health contentment springs," but it must be labor under sanitary conditions or there will be neither health nor contentment.

There are continual calls for help for consumptives, and in many of these cases the foundation of the disease was the unsanitary conditions of the public schools which were attended. How much more expedient it would seem to prevent this trouble than to cure it! Keating speaks of school pathology, and gives the following affections as those which originate from school influences: dyspepsia, headache, nervous disorders, neurasthenia, backache, menstrual disorders, consumption, spinal deformities and disease of the eyes. Surely if there is any method or system that can be introduced in our rural schools which will destroy or prevent influences that produce all these evils it would be well to consider them. In another article we will particularize some of these conditions and their results.

THE DOCTOR IN THE SCHOOL.

Dr. Helen McMurchy.

(From "Farmer's Magazine"—By permission of publishers.)

The results of medical inspection of schools vary. Results must vary where so many people are concerned, because each must act well his part to achieve the success of the whole.

How Not To Do It.

Anybody can spoil medical inspection of schools. The school trustee may declare it "a fad," and refuse to have it at all. The teacher is our chief helper, but sometimes even the teacher delays to come to our aid, not knowing how much we can and will do for her and for her pupils. Sometimes the parent, with whom above all we wish to co-operate, has had an unfortunate experience, and solaces himself for it by abusing all doctors. These are difficulties; but, as Sir James Whitney says: "Difficulties exist only to be overcome," and the trustee, the teacher and the parent will all make common cause with us some day if we can show good results. What results can we show?

How to Get Clean Hands.

Here is a class of boys. Even if you do think they have the blackest hands in Canada, it would be a mistake to say so. It would be a mistake to demand to examine hands on this, the first visit. They have just come in from the schoolyard, and the boy who keeps his hands immaculate on the playground is likely to die young.

Twelve Years Old.

Were you ever twelve years old? HE was, who met the doctors in the temple, and the doctors loved the Divine Child and detained Him long. Here are some twelve-year-old boys. Speak them fair. Tell them something interesting about the school in the city or the country—something that has a gleam of fun in it. Give them notice of what you want on your next visit. Tell them a story.

Children have an insatiable appetite for good stories. Drop a tactful hint about hands, and at the first word you will see each little man sliding his hands into his pockets, or under his desk, or somewhere out of sight.

THE NEXT VISIT.

On your next visit you will see the cleanest hands in Canada, all at the price of giving them fair warning and a few kind words. That is the way you would want to be treated if you were a boy. Indeed, it is the way you want to be treated now that you are no longer a boy or girl.

THE DOCTOR IS COMING.

It is wonderful what results come from the mere fact that there is a school doctor coming. It was found in Edinburgh that the announcement of medical inspection on such a day was sufficient to cause a marked improvement in the general appearance of the children. Clothes were changed and baths took place, and altogether the event was taken seriously. So it should be.

An Open Air School in London, England.

MODERN EDUCATIONAL METHODS.

It will not be amiss for the school medical officer to familiarize himself with modern educational methods. The doctor does not always know about the Phonic Method. "The Schoolmaster," London, tells a story of a small boy taken by his mother to be examined by the school medical officer, who proceeded to test the boy's sight, placing upon the wall the usual alphabetical display. "Now, Tommy," he said, pointing to F, "tell me what this letter is." The boy jerked his head forward, and made a sound resembling the first pant of a locomotive. The medical officer looked very hard, but pointed to S, saying, "Now this one." The boy at once emitted a sound like the hiss of a prodigious serpent. This was too much for the doctor, who gave a look of significant inquiry at the mother. "No, sir," she cried, bursting into tears, "he's not mad. That's the way they teach 'em to read nowadays."

SCHOOL REGISTRATION.

One result of medical inspection of schools has been to show how faulty our methods of school registration are. Our national schools should have a complete list of the names of all children of school age in the province. This is not the case now. When doing school medical inspection the writer never stood at a school door and looked as far as the corner of the street without seeing children of school age, neglected or not, but certainly not at school. Their names are frequently not on the school register at all. The same thing was discovered by the supervisors of the Toronto Playground Association. When children came to the playground during school hours their names and addresses were always taken, and frequently these names, on being looked up, could not be found on the school register at all.

A Toronto Playground.

REMEMBER THEM.

This is particularly the case with physically or mentally defective children. Serious cases of this kind do not get to school, and so the disabled, the handicapped, the neglected—who need education most because they need all the help they can get if they are to be able to earn their living, and not be a burden to themselves and others—are not getting any good of the education that the State provides for every child. That family pays school taxes, and heavy taxes at that, but the very lame little girl—the very, very deaf boy—the child that cannot see enough to read, the child whose brain will never develop, they, who need most, get nothing. They are not at school at all.

One of the results of medical inspection of schools has been to show that our Compulsory Education Act is not being carried out, that we need to have an accurate registration of all our children, and that it is often the most needy cases who are not at school. What are we going to do about it? Register the children, and, the school doctor says, give every child the education that will fit him or her to earn part, or the whole, of his or her living.

AN EDUCATIONAL CAMPAIGN.

Perhaps one of the most important results of medical inspection of schools is its general educational influence on the community. There are even yet people living in Canada who think that children's diseases are diseases that all children should have and "have them over"! Not at all. Take care of John and Mary. especially till they are twelve years old, and they need never and should never have measles or whooping cough, or scarlet fever or any other disease. It is a far greater crime for your next door neighbors to steal John's health or Mary's health by letting them get scarlet fever from their John or Mary than it would be for that next door neighbor to come into your kitchen and steal ten dollars. Children's diseases are diseases that children should never have.

TUBERCULOSIS.

Even yet there are people living in Canada who think that consumption is hereditary. Our medical inspectors of schools should see to it that everybody in the rising generation knows better than that, and knows how we may protect ourselves and others from tuberculosis.

A "RUNNING EAR."

Even yet there are people living in Canada who think the child will "grow out of" a discharging ear—whatever that means—and the medical inspector of the school can do no better missionary work than to take a few minutes to tell the mothers about what a discharge from the ear means, how it may affect the brain and cause death, how it may permanently destroy the hearing, and how that ear may be properly cared for and cured. That may be made plain to the mother. She will see that what you say is reasonable and right, and she will do what you advise. It is worse than useless to report so many dozen children with discharging ears. That is not medical inspection at all. That leaves us just where we were. Anybody can see that an ear is or is not discharging.

What we want the medical inspector to do, either personally or through the school nurse, is to persuade the parents to take the child to the family physician for treatment, if they can afford it, and if they cannot, to find some other way in which the child's life and efficiency may be saved for the benefit of himself, his family, and the nation.

CLEANLINESS.

So with the general question of cleanliness. Are Canadians conspicuous for cleanliness? That depends on you and me and those whom we can influence. The school doctor and the school nurse can do more than any of us.

Among new Canadians who come from almost every country under heaven the gospel of cleanliness must be preached, and the school is the best place to preach it and see it carried out.

CAN JOHN AND MARY SEE WELL?

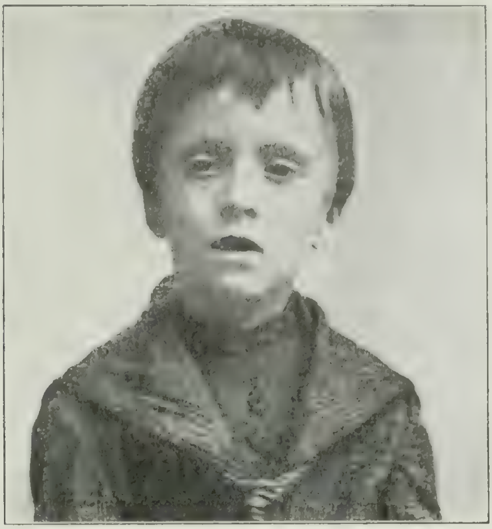
No condition in school life or in any part of life is more important than sight. And it is incredible how many good and well-to-do parents have never thought of knowing whether John or Mary see well. They are so surprised when the school doctor finds out that they do not see well! Children do not know that the reason they cannot answer the teacher is that they cannot see the letters she is pointing to as easily as the other boys and girls do. It never strikes John that the reason Tom always shouts out the letter before he does is that Tom can see it and he cannot. John thinks Tom is smart and he is not. The teacher says so. The only way to be sure is to test thoroughly and skilfully and tactfully the sight of every child. This must either be done or at least thoroughly supervised by the doctor. Left to someone else often it is not done. The principal is there to organize and manage the school. The teacher is there to teach. The doctor is there to see that sight, hearing and health are as good as can be. We know of some cases where the smartest pupils learned the letters on the test card by heart and obligingly whispered them to the rest! We know of other cases where the principal assured the school doctor that there was not one case among several hundreds of pupils where the sight needed attention! Such a condition of affairs means at the best a waste of precious money and more often a life-long loss of efficiency and education, leading to unemployment and uselessness of the children so neglected and sinned against. For the child that cannot see cannot learn, and the modern world has no place for the illiterate.

ADENOIDS.

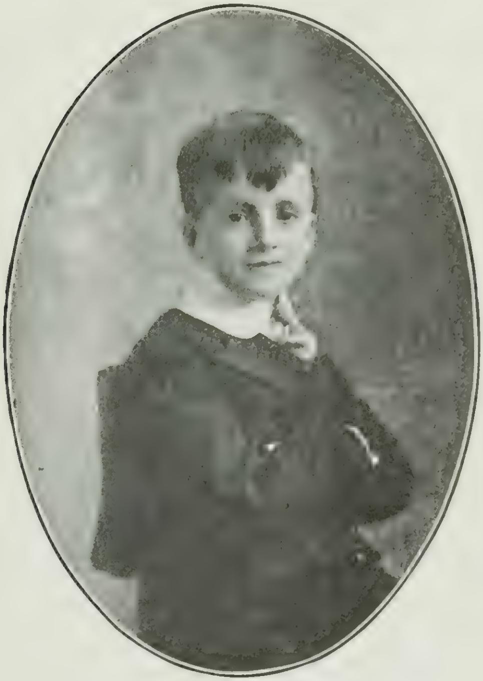
Almost as important is the question of adenoids and the ill effects which they cause. In many cases, adenoids, which cause mouth breathing, and that often means mal-nutrition, mal-development, stunted growth, dull and stupid mind, may practically ruin the child's career, both at school and in after life. Give us the good school doctor to save the child from such a calamity as the permanent loss of health and growth, both mental and bodily, caused by adenoids.

TEETH.

The question of children's teeth is quite as serious as any of these except perhaps that of the eyesight. It would need an article to itself, but this much may be said here, that even the little work that has been done in Halifax and Montreal, Hamilton, Toronto, Winnipeg, Vancouver and Victoria on medical inspection of schools has shown us that we have already reached a condition of affairs where all the dentists in Canada cannot overtake the immense amount of work that it would require to fill all the defective teeth in our school children! Our only hope is to prevent decay. Dirty teeth decay. Clean teeth do not decay. The use of the tooth brush will do more to prevent national physical degeneracy than the use of any other weapon whatever. The tooth brush is mightier than the sword.



An Adenoid Face.



Same Boy Two Years After Operation.

THERE ARE OTHER QUESTIONS.

The school doctor knows the answer.

In conclusion we can only make a list of a few more urgent matters of health which nothing but the medical inspection of our schools offers much prospect of setting right.

Many children have headaches. Why?

School-room air is often bad. Why?

Some children are pale and anaemic. Why?

The school-room is not well lighted. Why?

The print in the text books is not good. Why?

The school sanitary conveniences are doubtful. Why?

Some children are below the average in height and weight. Why?

The desks are not made to fit the children. Why?

Some children have "growing pains." Why?

The school-room is not very clean. Why?

Some children have a slight limp or have one shoulder higher than the other. Why?

Some schools have small playgrounds. Why?

We need open air schools. Why?

THE CHILDREN WHOSE NEED IS GREATEST.

Among other results already coming from medical inspection of schools should be mentioned the establishment of special schools and special classes for mentally or physically defective children. Thus the school doctor helps in the classification of the pupils. "She is a very stupid girl," said a principal one day. "I don't think I ever saw a stupider girl. I kept her in myself one night to learn some spelling she had missed and I thought she never would learn it. I was tired out with her." "I am sure you were," said the school doctor. "The girl is defective mentally, and cannot learn like other children. It is not stupidity, but inability." There is no help for that girl but recognizing the true condition, teaching her what she can learn to do well, some industrial work, and giving her the permanent care, which is the only successful and economical way to provide for the feeble-minded. The school doctor can tell us that in an ordinary class she is a hopeless misfit. It is not her fault.

CONCLUSION.

In short, there is no great problem of public health and national welfare which the medical inspection of schools, in competent hands, and well-administered, cannot help to solve.

Its successful administration depends upon three things:

1. Selection of the very best persons as school medical officers.
2. The effective co-ordination of medical inspection of schools with other branches of the educational system and the public health service.
3. The discovery of defects among our school population, and the removing or curing of these.

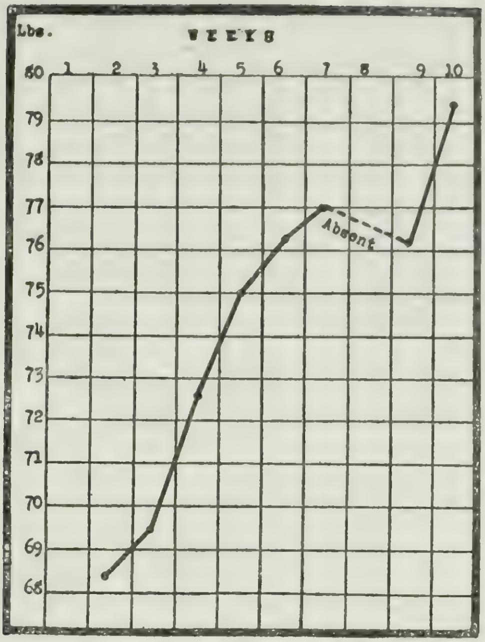


Chart I. Variations in weight of Kathleen M—, Bostall Wood Open-air School. Note decrease during eighth week when she was absent.

This Girl Gained Over a Pound per Week.

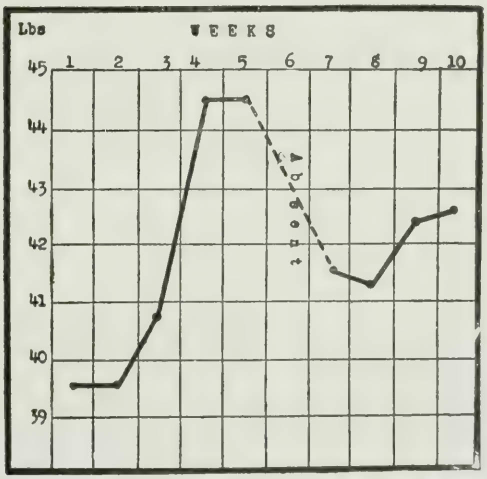


Chart II. Variations in weight of Arthur W—, Bostall Wood Open-air School. Note decrease during sixth week when he was absent.

This Boy Gained a Pound a Week.

RURAL SCHOOL-HOUSES AND THEIR EQUIPMENT,

(From "Canadian Home Journal"—by permission of Publishers.)

By A. A. Backus, M.D.

It is only within a very few years that educationists have concerned themselves with those subjects that are the practical ones of life: home-making, domestic science, care of the child, agriculture; those everyday things which make up the ordinary human life. This is a vast stride towards the welfare of human beings and the goal of content.

Content comes from doing the everyday duties with interest and intelligence. The knowledge of the whyness of the doing makes a joy in the doing. Why should we eat certain foods? Why should we ventilate our homes? Why should we develop our bodies? Why should we beautify our homes? Why should we learn to love nature? And a thousand other questions correctly and intelligently answered by the doer makes the doing a pleasure.

The earliest impressions of the child—what it sees in its own home in the way of answers to these quesions, is of very great importance in after life—and next to the home the impressions the child receives in school and school surroundings are the factors which influence mind and body in the years to come.

Architectually, what do our rural schools say to us and to the children? Is there any effort made in their building to convey a sense of beauty and order either inside or out? Is there any effort made (except in rare instances) to have the grounds about the schoolhouses anything but a barren waste? It is the true answer to these questions that suggests the writing of this article.

In going about the country the one thing which most strikes the traveller is the uniform ugliness of the rural school buildings, and the sod-bare disorder of the grounds. This, with the two hideous little buildings so prominent in the background, and quite unscreened from every point of view, makes one wonder what ideals of beauty and modesty can be developed in such surroundings, and when the school-house is entered the same careless barrenness is found within—together with bad air—not only from lack of ventilation, but from the fact that the children's outdoor garments and their lunch-baskets are kept in the schoolroom.

Remember, the school children in the country must in many cases carry a lunch for their mid-day meal, and the odor from fifty or sixty lunch baskets is not by any means the odor of violets, particularly as many of them are made up of pie, cheese, bread and butter and onions.

The medical inspection of rural schools would necessarily put an end to this unsanitary condition of things; and, considering the influence of order, decency and beauty upon the health and morals of people, would introduce some proper care of the school grounds, and a decent privacy for teachers and children. If more care were given to the situation and proper equipment of country schools, it might lessen the attendance later on in our hospitals and reformatories.

The site of the schoolhouse is usually and very properly chosen from the centre of the district, and as the land value in the country is not great, there are generally roomy grounds on which to build, and ample space from which to select an elevated spot where the earth will dry quickly after rains. This is of importance, as in damp, low-lying land we find consumption, rheumatism, catarrh, and fevers prevail. In building schoolhouses in the city, so many things have to be considered that are unthought of in the country: space for grounds, adjoining buildings, noise, light, to get out of the shadow of high buildings, and many other things. But in the country none of these problems come up, and space is unconsidered. Yet we find the grounds in the city, at least at the entrance of the school, green and cared for, while those of the country schools are bare and uninteresting from one end to the other. There is no less interesting spot in the world than the grounds of our rural schools, and yet every one could be made a bower of beauty without any cost but labor and taste.

It would be well if a representative from every school board in the rural districts of Ontario could visit the Jordan Harbor school, and witness what can be done, not only in beautifying the school surroudings, but at the same time planting a love of beauty and order in the hearts of the children attending that school, giving them a knowledge of horticulture and agriculture, and while so doing placing the children in the most practical way towards the acquirement of physical strength.

The objectless screaming and yelling and tearing about of school children at play is waste of time and strength—there should be discipline even in play—if not, the bully develops at the expense of the weak, and the children who most require physical development are either jerked about beyond their strength, or kept by fear from play at all.

If we owe any education to our children at all, it should be a practical one, and to learn how to beautify and care for the school grounds is to learn how to make beautiful and to care for that part of the great earth which falls to the lot of anyone so taught, and which she or he calls Home. The grounds about our schoolhouses should be a constant object lesson in order and beauty, and the interior of our schoolhouse furnished with some thought of the welfare and comfort for those children who must sit there so many hours in the day.

The light in the room is of great importance—well-lighted, well-ventilated, properly heated—not a case of those near the stove being choked and those far away freezing. Another important feature is the seating—graded seats, with proper adjustment of desk to seat.

It is no unusual thing to find spinal deformities acquired at school from the improper relative position of desk to seat, and to furnish a schoolroom with seats all of the same size is an absurdity.

Go into any well-regulated dairy stable in the province and you will find the stalls graded to the cows; but in the rural schoolhouses tall and short children are expected to accommodate their bodies to the seats and desks, too often at a sacrifice of comfort and health.

The interior of the schoolrooms should be orderly—consequently a separate apartment is necessary for cloaks, lunch baskets, etc., one for boys and one for girls. The walls of the schoolroom should not be without some adornment, and a few dollars might well be spent for pictures of historic interest, events and characters, women and men who in the early days braved every hardship to make Canada a country wherein to live.

There must be some way by which to interest the children in patriotism and love of country, and the best way is to make them realize what individual effort and sacrifice have done in making the nation. Heroes, heroines, statesmen, writers, poets—have something in our rural schoolhouses to direct the thoughts of the pupils to these and to their achievements.

The ordinary schoolroom is more like an untidy barn than anything else. In some places you will yet see the pail for drinking water in the corner, and the tin cup for all. Even if there was no danger of contagion from this, it would be a bad example. No truly clean person cares to drink of water that has been standing in a room where the atmosphere is contaminated with the exhalations from many lungs, and from the dust floating about from blackboard and books.

All schoolhouses should have proper lavatory equipments, and every child taught to be particular in habits of cleanliness in order that those children from well-kept homes should not have their sensibilities blunted by carelessness, and more particularly in order that the children coming from ill-regulated homes be taught that cleanliness is, or is very near, akin to godliness.

A few hundred dollars added to the appointments in the schoolhouse would mean only a trifle in taxation, but it would mean a value beyond price to the health of, and moral influence on, the children. If the schoolrooms were made more pleasant and comfortable, and used by the people of the section for entertainments in the evenings, debates, dialogues, lectures and kindred subjects, it might waken a pride and care for the appearance of the room.

Day after day, so many hours in the day, the children sit in these schoolrooms; these children in turn become the men and women, and it is the environment of to-day that must influence to-morrow's conduct and ideals. There are many schoolhouses in the rural districts beautifully situated amidst trees and fertile fields, but so badly cared for that they look like disreputable dives. This state of things is not only unfair to the children, but to the teachers as well; although sometimes a teacher is able to secure the co-operation of trustees, and, with the assistance of the pupils, turns the wilderness of grounds into a garden of beauty.

These are the rare exceptions that show the possibilities and the educational value along that line of knowledge dealing with horticulture and agriculture—most important subjects in the country home. We often find an anxiety shown about keeping the boys and girls on the farm. These subjects properly understood might be factors in holding them there. Make our country houses and our country schoolhouses as convenient and as beautiful as those in the city, and we have gone a long way towards keeping the young people happy and content.

It is particularly strange how little attention is given to making country life interesting to children; but it is not a bit strange the difficulty country schools have in securing first-class teachers. The wretched condition of our schoolhouses alone makes every ambitions teacher anxious to secure a school in village or town. The medical inspection of rural schools might necessitate many changes, but they would all be for the good of the children, the teacher and the community.

HYGIENE FOR RURAL SCHOOLS.

(From "Canadian Home Journal"—by permission of Publishers.)

By A. A. Backus, M.D.

To sum up the suggestions in our former articles upon this question we will divide this one under four heads, viz.: Light, ventilation, drinking water and seating.

In the first place the fact that so many school children suffer from some form of eye trouble shows plainly there must be something wrong in the lighting of our schoolhouses. The difficulty in cities is sometimes unavoidable, because of the difficulty in procuring open space, but in the rural schools this is never the case. Therefore it is always possible to have sufficient light if care is taken in arranging for windows. To get the best effect windows must reach within a few inches of the ceiling. Lighting from the sides is considered by most of our architects insufficient, and by an oculist impracticable. Therefore the easiest remedy is to have windows at the back as well as at the sides of the schoolrooms. The windows ought to have square rather than Gothic tops, and no projecting outside casing or ornaments to cut off the light. Awnings are undesirable, as are yellow, white and red shades. A neutral grey tint is best, and the same neutral grey tint carried out on the inside walls is pleasant to the eye. Dr. F. Lincoln, M.D., writes: "It is a cardinal rule that no one shall be forced to face the windows while reading or otherwise exercising his sight. Therefore no windows must be in front of the scholars. Excessive use, even under favorable conditions, wearies the eye. It seems well proved that, in general, students who spend longer hours over home lessons are affected by near-sight in larger proportions." Poor light not only fatigues the eye, but also induces the pupil to bring the eye closer to the book.

The eye of a child has an astonishing faculty of seeing things at the distance of two or three inches—and this cannot be done except by the "muscle of accommodation" and in using this muscle, which arranges the focus, there is a change in the shape of the eyeball. An eye in this condition is working in a state of tension and if too long continued is liable to produce permanent change in the form of the shape, which produces eventually the near-sighted eye.

This peculiarity of accommodation also makes it difficult to get children to obey the physiological laws of distance, particularly as there are so many faults in the school furniture to encourage this defect. Separation of the seat from the desk rather than having the desk partly over the seat is one fault, a desk too high in proportion to seat is another, and the stooping position of children in writing is not only bringing the eyes too close to the object, and consequently harmful to them, but the body as well.

During childhood, while the tissues are soft and in formation, it is easy to acquire any deformity, and the eye of the growing child is peculiarly liable to conform to wrong adjustments which are sometimes difficult to connect with any form of lens. The limit at which a book should be held from the eye for small children is from nine to fourteen inches, for larger children, fifteen or sixteen inches, and in the well-lighted schoolroom with properly adjusted desks and seats, there will be little difficulty in getting the pupils to adopt this "physiological" distance. Hypermetropia—long-sight—is a common trouble, astigmatism is also common, both of which are aggravated by poor lighting, and require the attention of an expert medical doctor.

A poorly lighted schoolroom is not only the cause of abnormal conditions of the eye, but the cause of general ill-health as well. Sunlight must enter the schoolroom, and will enter it if proper attention has been given to the lighting. Ventilation is a part of lighting, for without that there can be no proper ventilation. When we remember that for every scholar there should be an allowance of two hundred and fifty cubic feet of space, this air space being renewed and changed from time to time, it is easily seen that in no way can that change be brought about so readily and so well as through the open windows.

As schoolhouses are now built, ventilation must be carried out through open windows until the system of ventilation by flues is more perfect than it is at present. There must be, even when flues exist, an additional income of fresh air through the windows. This is accomplished by lifting up the lower sash and lowering the upper sash; window boards are placed under the lower sash, filling the entire space, the air entering the crack between the sashes. In this way all direct drafts of air are avoided.

Heating and ventilating go hand in hand, and in our rural schools both are left to the care of the teacher. Here we have wood fires, and often the fuel is green, so that under the very best management the temperature will vary from 50 degrees to 85 degrees, and a thermometer is something almost unknown in the country schoolhouse. The only way to discover the amount of heat or cold is that teachers and children are burning or freezing.

There are some ventilating stoves now on the market, and no doubt, although they cannot supply a quantity of air sufficient with the needs of a school, yet they are good as far as they go.

Fireplaces in private houses are remedies for bad ventilation, but are not equal to the requirements of a school, although a partial remedy in some cases.

The great difficulty in ventilating schools in cold weather is that the impurities in the air cannot be got rid of by themselves, and as the question is one of pure air our only remedy is to dilute the air by letting out some that is foul and letting in some that is pure. In some cases there is a greater fear of too much dilution by fresh air than of contamination by foul, as children and teacher suffer the consequences of the present conditions through many yeare to come, and without doubt many patients in consumption hospitals to-day are now paying the penalty of bad ventilation in the schools which they in childhood attended. Of so great consequence is the ventilation of schoolrooms that the thought governing the mind of the architect ought to be, "How can we get rid of the bad air from the exhalations from all these lungs? How can we introduce enough pure air properly warmed to feed these same lungs?" Every device of flues, fireplaces, ventilating stoves, windows, sunlight, ought to be considered and introduced in rural schoolhouses regardless of present cost, as it will be a better investment for the future than even Weston Farm, and will enable the children to develop into strong, vigorous men and women.

Some teachers of the present day have very wisely introduced the custom of opening the windows for a few minutes during school hours, and at the same time giving the children some form of calisthenics. If a school is so fortunate as to own a piano a musical march or drill of five or ten minutes' duration does a great deal of good, helps discipline, relaxes the tension of the mind, relieves the eye and prevents any tendency to take cold from the open windows as the pure air comes in and the contaminated air escapes. Perhaps there is no greater need in the physical development to-day than increased breathing capacity. This could be greatly encouraged by suggestion during exercise.

There can be no more profitable education than that which fits each for the everyday duties of life, and surely the knowledge of hygiene, or the laws of health, is most important, and this teaching should be practical rather than theoretical, carried out every day in the school life and its adjustments.

Light and ventilation are the most important sanitary agents, and put the body in condition to withstand the onsets of disease.

Care of drinking water for school children is often neglected, and the custom of all pupils drinking from one common cup is not only unsanitary but has a tendency to develop habits of carelessness and an indifference to the common and "sweet civilities of life." There is a form of nervous drinking by children, and much water is taken which is not needed at all. If you have noticed children in the train, you know the constant running up and down to and from the drinking cup. This is not so much evidence of thirst as of an uncontrolled nervousness. This same thing is carried out in school, and many children if not checked will drink fifteen or sixteen cups of water each day. This causes distended stomachs, and results eventually in some form of indigestion difficult to correct. That the supply of drinking water should be uncontaminated is so evident it would seem unnecessary to write of it, but the condition of the pumps and platforms at the wells in the rural school grounds so often indicates a disregard of ordinary cleanliness, we cannot but call attention to the need of care in this respect.

Pure drinking water, individual drinking cups, a proper pitcher from which to pour it, are some of the requisites to remember in the water supply. The obvious disregard of the comfort of school children is evident in the manner of supplying seats and desks for the pupils, and that this very disregard is the cause of physical deformities there is no doubt. The rarity of a well-formed body is a disgrace to the race; in the lower animals deformity is most uncommon, but probably ninety per cent. of all children after the age of fourteen show some lack of symmetry acquired at school from improper seating, the attitude taken at the desks when writing, and the lolling habits indulged in, both at school and at home.

Perhaps of all the departments in school hygiene to be considered, that of the country privy is most needed, and if the checking of youthful immorality is desirable, here is a splendid place from which to work. "Unclean! unclean!" is the cry of the wooden leper from its ever prominent position in the rural school grounds.

The sanitation and beautifying of our rural schools means so much to the education as well as the health of the pupils that only from the educational side is it worthy of consideration. Children coming from well-regulated, sanitary, orderly schools must bring ideals of health and system which will be carried out in their own homes later on, and the three greatest elements towards health are light, ventilation, and proper physical development.

INSTITUTE LECTURERS, SUMMER, 1912.

Front Row, from left to right.—Dr. Jennie Smillie, Mrs. W. Dawson, Miss E. Robson, Miss D. I. Hughes, Miss S. Campbell, Miss G. Gray.

Middle Row.—Miss B. Gilholm, Mrs. Laura Rose Stephen, Miss M. Hotson, Miss M. McKenzie, Mrs. D. McTavish, Miss M. Allan, Mrs. M. N. Norman, Mrs. W. H. Parsons, Mrs. C. H. Burns, Mr. G. A. Putnam (Supt.).

Back Row.—Miss M. P. Powell, Miss B. Millar, Mrs. W. J. Hunter, Mrs. M. L. Woelard, Mrs. E. B. McTurk, Miss E. D. Preston.

INSTITUTE MEETING AT BARNHART, RAINY RIVER DISTRICT, JUNE, 1912.

WOMEN'S INSTITUTE OF ONTARIO.

1912-13.

DISTRICT OFFICERS.

District.		Names.	P. O. Address.
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	Vice-President	Mrs. J. Neilson	Stella.
	Secretary-Treasurer	Mrs. S. K. Tugwell	Stella.
Brant, North	President	Mrs. W. H. Ker	St. George.
	Vice-President	Mrs. S. G. Kitchen	St. George.
	Secretary-Treasurer	Miss Isabel Callaghan	St. George.
Brant, South	President	Mrs. Jas. Eadie	Oakland.
	Vice-President	Mrs. J. E. Anderson	Scotland.
	Secretary-Treasurer	Miss Birdie Roelofson	Brantford.
Brockville	President	Mrs. Wm. Johnson	Athens.
	Vice-President	Mrs. S. S. Cornell	Athens.
	Secretary-Treasurer	Mrs. Chas. F. Yates	Athens.
Bruce, Centre	President	Mrs. I. Shoemaker	Paisley.
	Vice-President	Mrs. W. R. McDonald	Ripley.
	Secretary-Treasurer	Mrs. R. J. Graham	Ripley.
Bruce, North	President	Mrs. W. J. Root	Wiarton.
	Vice-President	Mrs. W. T. Parke	Colpoy's Bay.
	Secretary-Treasurer	Mrs. Arthur Watt	Wiarton.
Bruce, South	President	Miss Margaret McKague	Teeswater.
	Vice-President	Miss Fern Reid	Lucknow.
	Secretary-Treasurer	Mrs. Ethel Morgan	Walkerton.
Bruce, West	President	Mrs. F. A. Thomas	Tara.
	Vice-President	Mrs. A. Baker	Allenford.
	Secretary-Treasurer	Mrs. J. S. Cameron	Port Elgin.
Carleton	President	Mrs. J. E. Caldwell	City View.
	Vice-President	Mrs. R. H. Grant	Hazeldean.
	Secretary-Treasurer	Mrs. G. R. Bradley	Carsonby.
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	Vice-President	Mrs. J. Blakely	Corbetton.
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	Secretary-Treasurer	Miss E. McGee	Chesterville.
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	Vice-President	Mrs. B. H. Marsh	Springville
	Secretary-Treasurer	Mrs. J. R. Eakins	Millbrook.
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	Vice-President	Miss A. C. Colville	Orono.
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	Vice-President	Mrs. I. R. Prichard	Springfield.
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Elgin, West	President	Mrs. Wray	Rodney.
	Vice-President	Mrs. E. V. Docker	Wallacetown.
	Secretary-Treasurer	Miss M. C. Gow	Wallacetown.
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	Vice-President	Mrs. Geo. Switzer	Essex.
	Secretary-Treasurer	Miss Ada B. Wilson	Essex.
Essex, South	President	Mrs. Wm. Holdaway	Kingsville.
	Vice-President	Mrs. S. A. Otton	Leamington.
	Secretary-Treasurer	Mrs. Angus P. Clark	Oxley.
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	Vice-President	Mrs. Alex. Tait	Collinsby.
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Grey, Centre	President	Mrs. W. T. Ellis	Kimberley.
	Vice-President	Mrs. W. Buchanan	Ravenna.
	Secretary-Treasurer	Mrs. J. B. Egan	Dundalk.
Grey, North	President	Mrs. Wm. McGregor	Kemble.
	Vice-President	Mrs. H. Norton	Chatsworth.
	Secretary-Treasurer	Mrs. B. J. Long	Meaford.
Grey, South	President	Mrs. W. H. Rogers	Holstein.
	Vice-President	Mrs. N. Eden	Varney.
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	Vice-President	Mrs. A. Snell	Hagersville.
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	Secretary-Treasurer	Mrs. Geo. Havill	Acton.
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	Vice-President	Mrs. Robt. Coulson	Foxboro.
	Secretary-Treasurer	Miss A. M. Long	Blessington.
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	Vice-President	Mrs. (Dr.) E. D. Harrison	Madoc.
	Secretary-Treasurer	Mrs. Jno. Snarr	Wellman's Cors.
Hastings, West	President	Mrs. S. E. Lane	R.F.D., 20, Sidney, Belleville.
	Vice-President	Mrs. W. H. Hanna	Stirling.
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	Vice-President	Mrs. Jno. Robb	Brussels.
	Secretary-Treasurer	Mrs. Jas. Armstrong	Gorrie.
Huron, South	President	Mrs. M. Monroe	Exeter.
	Vice-President	Miss G. Connor	Exeter.
	Secretary-Treasurer	Mrs. A. Hastings	Exeter.
Huron, West	President	Mrs. M. Swanson	Goderich.
	Vice-President	Mrs. Geo. Powell	Blyth.
	Secretary-Treasurer	Mrs. Chas. E. Young	Goderich.
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	Vice-President	Mrs. Wm. Dean	Wabash.
	Secretary-Treasurer	Mrs. M. West	Kent Bridge.
Kent, West	President	Mrs. Ed. Clark	Tilbury.
	Vice-President	Mrs. D. Crew	Port Alma.
	Secretary-Treasurer	Mrs. J. H. Williams	Fletcher.
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	Vice-President	Mrs. J. G. Dawes	Thedford.
	Secretary-Treasurer	Miss S. Pettypiece	Forest.
Lambton, West	President	Mrs. S. Kerr	R.R. No. 2, Sarnia.
	Vice-President	Mrs. W. Leonhardt	Thornyhurst.
	Secretary-Treasurer	Mrs. W. G. McBean	Waubuno.
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Lanark, South	President	Mrs. And. Wilson	Appleton.
	Secretary-Treasurer	Mrs. R. V. Fowler	Perth.
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	Vice-President	Mrs. T. J. Frye	Soperton.
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	Vice-President	Mrs. S. Jakes	Merrickville.
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	Vice-President	Mrs. T. W. Gurren	Sandhurst.
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	Vice-President	Mrs. W. Tufford	Beamsville.
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	Vice-President	Mrs. A. E. Jackson	Harrietsville.
	Secretary-Treasurer	Miss Becca Hobbs	Birr.

District.		Names.	P. O. Address.
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	Vice-President	Mrs. E. B. McTurk	Lucan.
	Secretary-Treasurer	Miss K. F. McIntosh	Box 10, Arkona.
Middlesex, West	President	Mrs. Ed. de Gex.	Kerrwood.
	Vice-President	Mrs. John Hughes	Napier.
	Secretary-Treasurer	Mrs. M. W. Cummiford	Strathroy.
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	Vice-President	Mrs. Jos. Gilmore	Winger.
	Secretary-Treasurer	Mrs. R. B. Fitzgerald	Fenwick.
Muskoka Centre	President	Miss J. McNicol	Allansville.
	Vice-President	Mrs. Chas. Oldham	Ufford.
	Secretary-Treasurer	Miss M. Johnson	Allansville.
Muskoka, North	President	Mrs. H. Dixon	Martin Siding.
	Vice-President	Mrs. Mary Hall	Ashworth.
	Secretary-Treasurer	Mrs. Wm. De Maine	Ashworth.
Muskoka, South	President	Mrs. H. L. Goltz	Bardsville.
	Vice-President	Mrs. H. Speedie	Muskoka Falls.
	Secretary	Mrs. Wm. Holliday	B. 331, Bracebridge.
	Treasurer	Mrs. Wm. Galbraith	B. 526, Bracebridge.
Norfolk, North	President	Mrs. L. Sharpe	Simcoe.
	Vice-President	Mrs. Geo Henry	Windham Centre.
	Secretary-Treasurer	Mrs. E. C. Barber	Simcoe.
Northumberland, E.	President	Mrs. L. L. Sherman	Brighton.
	Vice-President	Mrs. D. H. Orser	Codrington.
	Secretary-Treasurer	Mrs. H. J. Scripture	Brighton.
Northumberland, W.	President	Miss M. Holdsworth	Port Hope.
	Vice-President	Mrs. J. G. Waite	Wicklow.
	Secretary-Treasurer	Mrs. R. C. Allen	Cobourg.
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	Vice-President	Mrs. Robert Gray	Goodwood.
	Secretary-Treasurer	Miss Kate McKay	Beaverton.
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	Vice-President	Mrs. C. J. Brodie	Claremont.
	Secretary-Treasurer	Mrs. William Balmer	Whitby.
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	Vice-President	Mrs. A. S. McKay	R.R. No. 3, Woodstock
	Secretary-Treasurer	Mrs. Matthew Cowper	Thamesford.
Oxford, South	President	Mrs. E. Snider	Burgessville.
	Vice-President	Mrs. Andrew Teeple	Curries.
	Secretary-Treasurer	Miss Lee McCrae	Tillsonburg.
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	Vice-President	Mrs. L. A. Hamilton	Lorne Park.
	Secretary-Treasurer	Miss S. Campbell	Brampton.
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	Vice-President	Mrs. W. McKee	Millbank.
	Secretary-Treasurer	Miss Allie Ducklow	Milverton.
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	Vice-President	Mrs. Luther Turner	Carlingford.
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	Vice-President	Mrs. David Taylor	Warsaw.
	Secretary-Treasurer	Mrs. Arthur Edwards	Warsaw.
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	Vice-President	Miss Georgia McIntosh	Vankleek Hill.
	Secretary-Treasurer	Mrs. Frederick McIntosh	Vankleek Hill.
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	Vice-President	Mrs. Will. J. Browne	Cherry Valley.
	Secretary-Treasurer	Mrs. W. R. Munro	Gilberts Mills.
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	Vice-President	Mrs. Andrew Elliott	Westmeath.
	Secretary-Treasurer	Mrs. John A. Bennie	Beachburg.
Renfrew, South	President	Mrs. J. F. Blane	R.M.D., Renfrew.
	Vice-President	Miss E. Fisher	Burnstown.
	Secretary-Treasurer	Miss Agnes McLachlan	Burnstown.
Russell	President	Mrs. Lindsay Allen	Vernon.
	Vice-President	Miss M. Howell	Vernon.
	Secretary-Treasurer	Mrs. J. C. Stuart	Dalmeny.

District.		Names.	P. O. Address.
Simcoe, Centre	President	Miss Sara M. McGinnis	Elmvale.
	Vice-President	Mrs. Wm. Train	New Flos.
	Secretary-Treasurer	Miss Jean Graham	Saurin.
Simcoe, East	President	Mrs. J. P. Wells	Orillia.
	Vice-President	Miss Alice Quinlan	B. 22, R.M.D., Barrie.
	Secretary-Treasurer	Miss Lillian Harvie	B. 520, Orillia.
Simcoe, South	President	Mrs. Jno. Faris	Bradford.
	Vice-President	Mrs. MacDonald	Painswick.
	Secretary-Treasurer	Mrs. R. Boyes	Churchill.
Simcoe, West	President	Mrs. J. Switzer	New Lowell.
	Vice-President	Mrs. Robt. Murray	Avening.
	Secretary-Treasurer	Miss Amelia Ovens	Creemore.
Stormont	President	Mrs. J. McQuaig	Finch.
	Vice-President	Mrs. Eastman	Cornwall Centre.
	Secretary-Treasurer	Miss G. Hamilton	Finch.
Union	President	Mrs. J. R. Aitchison	Clifford.
	Vice-President	Miss Mary Watson	Clifford.
	Secretary-Treasurer	Mrs. J. R. Scott	Clifford.
Victoria, East	President	Mrs. (Dr.) Gould	Fenelon Falls.
	Vice-President	Mrs. Wm. Cottingham	Omemee.
	Secretary-Treasurer	Mrs. Sidney H. Cluxton	Bobcaygeon.
Victoria, West	President	Mrs. B. Cruess	Oakwood.
	Vice-President	Mrs. Wm. Wilson	Islay.
	Secretary	Mrs. J. T. Birchard	Linden Valley.
	Treasurer	Miss L. Gertrude Birchard	Linden Valley.
Waterloo, North	President	Mrs. D. McKay	Linwood.
	Vice-President	Miss B. Hastings	Crosshill.
	Secretary-Treasurer	Mrs. J. G. Hurst	Conestogo.
Waterloo, South	President	Mrs. Alex. McDonald	New Dundee.
	Vice-President	Mrs. R. H. Knowles	Hespeler.
	Secretary-Treasurer	Mrs. F. W. Cornell	Preston.
Welland	President	Mrs. H. Hobbs	Port Colborne.
	Vice-President	Mrs. Irvin Teal	Ridgeway.
	Secretary-Treasurer	Mrs. Jno. Gaiser	Welland.
Wellington, Centre	President	Mrs. M. Thompson	Erin.
	Vice-President	Mrs. Thompson	Marsville.
	Secretary-Treasurer	Mrs. Jas. McLachlan	Erin.
Wellington, East	President	Mrs. T. Craig	Grand Valley.
	Vice-President	Mrs. N. Bicknell	Arthur.
	Secretary-Treasurer	Miss S. J. Tebbutt	Grand Valley.
Wellington, South	President	Mrs. M. P. Barry	Rockwood.
	Vice-President	Miss M. Ariss	50 Howitt St., Guelph.
	Secretary-Treasurer	Miss E. Friendship	Guelph.
Wellington, West	President	Mrs. J. Salter	Palmerston.
	Vice-President	Mrs. F. Short	Moorefield.
	Secretary-Treasurer	Miss Gussie Noecker	Drayton.
Wentworth, North	President	Mrs. (Rev.) Leckie	Kirkwall.
	Vice-President	Mrs. McK. Morden	Greensville.
	Secretary-Treasurer	Mrs. J. E. McDonough	Westover.
Wentworth, South	President	Mrs. Adam Inch	Mt. Hamilton.
	Vice-President	Mrs. (Dr.) Boyce	Glanford.
	Secretary-Treasurer	Mrs. John Bowslaugh	Grimsby.
York, East	President	Mrs. R. N. Fairles	Bloomington.
	Vice-President	Mrs. A. R. Hall	Thornhill.
	Secretary-Treasurer	Miss Lulu Reynolds	Scarboro Jct.
York, North	President	Mrs. C. F. Doane	Newmarket.
	Vice-President	Mrs. G. A. McDonald	King.
	Secretary-Treasurer	Mrs. H. J. Clubine	Newmarket.
York, West	President	Mrs. W. O. Duncan	Emery.
	Vice-President	Mrs. S. Bryans	320 Pacific Ave., W., Toronto.
	Secretary-Treasurer	Mrs. J. A. Lambie	Islington.

Districts without separate district officers—S. Grenville, Haliburton, Peterboro, N.

NORTHERN DISTRICTS.

District.		Names.	P. O. Address.
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Goulais Bay	President	Mrs. Malcolm McLean	Goulais Bay.
	Vice-President	Mrs. John Whalen	Goulais Bay.
	Secretary-Treasurer	Mrs. F. McKaughan	Goulais Bay.
Tarentorus	President	Mrs. T. C. Dinsmore	B. 797, Sault Ste. Marie.
	Vice-President	Mrs. Chas. Nixon	B. 577, Sault Ste. Marie.
	Secretary-Treasurer	Mrs. A. H. Huckson	B. 182, Sault Ste. Marie.
Algoma, North Shore	President	Mrs. Jas. Junor	MacLennan.
	Vice-President	Mrs. Hunter	Desbarats.
	Secretary-Treasurer	Mrs. W. J. Nott	MacLennan.
	Assist. Sec.-Treas.	Miss Jennie Junor	MacLennan.
Kenora	President	Mrs. N. Lucas	Eagle River.
	Vice-President	Mrs. W. F. Bicknell	Bedworth.
	Secretary-Treasurer	Mrs. D. Hutchison	Dryden.
Manitoulin, East	President	Mrs. D. Caddel	Mindemoya.
	Vice-President	Mrs. J. King	Mindemoya.
	Secretary-Treasurer	Mrs. A. Trowbridge	Big Lake.
Manitoulin, West	President	Mrs. Geo. Emiry	Foxey.
	Vice-President	Mrs. Robt. Cranston	Spring Bay.
	Secretary-Treasurer	Mrs. Geo. J. Priddle	Silver Water.
Rainy River	President	Mrs. J. Carey Smith	Burriss.
	Vice-President	Mrs. M. L. Robertson	Stratton.
	Secretary-Treasurer	Mrs. Ella Darlington	Barnhart.
St. Joseph Island	President	Mrs. Jos. Frarey	Richards Landing.
	Vice-President	Mrs. J. Butson	Carterton.
	Secretary-Treasurer	Mrs. Ernest Lambert	Harmony.
Temiscamingue	President	Mrs. J. T. Welbourne	Uno Park.
	Vice-President	Mrs. John Aitcheson	Hillview.
	Secretary-Treasurer	Mrs. Walter Kirstine	Haileybury.
Thunder Bay	President	Mrs. J. Hahn	Murillo.
	Vice-President	Mrs. Gavin	117 S. Norah St., Ft. William.
	Secretary-Treasurer	Mrs. Jas. McGregor	Slate River.

Districts without separate district officers—Algoma East, Nipissing, and Parry Sound East.

BRANCH OFFICERS.

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Cainsville	Mrs. A. B. Rose	Mrs. E. H. Foulger.
Glen Morris	Mrs. Jos. Vanatter	Miss S. M. Weir.
Langford	Mrs. H. M. Vanderlip R.R. No. 1, Cainsville	Miss Dolly Westbrook, R.R. No. 1, Cainsville. Treas. Mrs. Herbert Hunter.
Middleport	Mrs. Richard Dougherty	Miss Florence Walker.
Moyle & Tranquility	Mrs. J. J. Hurley, 26 Lorne Crescent, Brantford	Mrs. G. T. Wood, Grandview.
Onondaga	Mrs. M. Simpson	Miss W. Churchill.
Paris	Mrs. Wm. Guthrie, Paris Station	Mrs. P. Kelley, Paris Station.
St. George	Mrs. W. H. Ker	Miss Isabel Callaghan.
Tutela	Mrs. A. Hird, Brantford	Miss A. Birkett, Brantford.

Institute.	President.	Secretary.
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Burford	Mrs. G. H. Fowler	Mrs. J. E. Brethour.
Burtch	Mrs. M. McIntyre	Miss Leta Thompson.
Cathcart	Mrs. G. VanHorne, Burford	Mrs. L. R. Weir.
East Oakland	Mrs. F. Cunningham	Miss M. Campbell.
Falkland	Mrs. Wm. Kuill, Canning	Miss Lucille Clement, Paris.
Mt. Pleasant	Mrs. Fred Malcolm, Mohawk	Mrs. D. McPherson, Mohawk.
New Durham	Mrs. Edward Wand	Mrs. Jack Williams, Harley.
Ohsweken	Mrs. Robt. Martin	Mrs. Enos Hill.
Scotland	Mrs. A. C. Eddy	Mrs. C. Hunter.
Whiteman's Creek	Mrs. Alfred Apps, Brantford	Mrs. Wm. Aulsebrook, Ameronto.
Brockville—		
Athens	Mrs. Wm. Johnston	Mrs. Chas. F. Yates.
Bruce, Centre—		
Armow	Mrs. Frank Shewfelt	Mrs. Wes. Hutton.
Bervie	Mrs. A. Cook	Mrs. J. T. Emmerton.
Chesley	Mrs. S. Owens	Miss M. McCannel.
Kincardine	Miss Hannah Wilson	Miss J. McGregor.
Paisley	Mrs. Duncan McGregor	Mrs. Wm. Rowand.
Pinkerton	Mrs. D. Pinkerton	Miss Ethel Mutrie.
Ripley	Mrs. R. J. Graham	Mrs. W. J. Crawford.
Williscroft	Mrs. Jas. Dudgeon	Mrs. Calvin Crawford.
Bruce, North—		
Colpoys Bay	Mrs. W. T. Parke	Mrs. Samuel Weir, Wiarton.
Hepworth	Mrs. Wm. Beacock	Mrs. M. McPhatter.
Hope Bay	Mrs. W. Lewis	Miss Lottie Hepburn.
Lion's Head	Mrs. W. B. Moore	Mrs. F. G. Moore.
Mar	Mrs. A. Crane	Miss Jessie Weir.
Park Head	Mrs. S. Smith	Miss Lou Spencer.
Wiarton	Mrs. Arthur A. Watt	Mrs. C. W. Loney.
Bruce, South—		
Belmore	Mrs. Wm. Loury	Miss Agnes Darling.
Lucknow	Mrs. Wm. McDonald	Mrs. R. T. Phillips.
Teeswater	Mrs. J. Good	Mrs. S. R. Brill.
Tiverton	Miss P. J. Brown	Miss L. N. Turner.
Walkerton	Miss B. K. Rowand	Miss Edna Wahn.
Bruce, West—		
Allanford	Mrs. A. Aikin	Mrs. A. Baker.
Arkwright	Mrs. T. Thomson	Miss Lily King.
Port Elgin	Mrs. R. M. Lowry	Mrs. Jas. S. Cameron.
Tara	Mrs. J. Beaton	Mrs. W. H. Whitworth, Box 103.
Carleton—		
Antrim	Mrs. J. J. Wilson, Pakenham	Miss J. E. Sparrow.
Carp	Mrs. Geo. Hodgins	Miss Lucy S. Gourlay, Huntley.
Galetta	Mrs. Archibald Riddell	Miss Charlotte Montforte.
Kars	Mrs. W. E. Stratton	Mrs. W. A. Magee.
Kinburn	Mrs. A. L. Stackhouse	Miss Maude Groves.
Manotick	Mrs. Geo. Clarke	Mrs. Geo. R. Bradley, Carsonby.
North Gower	Mrs. R. A. Craig	Mrs. A. W. Callander.
South March	Mrs. Robt. Richardson	Mrs. Thos. Watts.
Stittsville	Mrs. John McGuire	Mrs. Thos. W. Boyes.
Dufferin—		
Blount	Mrs. Geo. Crozier, Mono Mills	Mrs. C. Crombie.
Bowling Green	Mrs. Lyman Potter	Mrs. N. B. Hinton.
Camilla	Mrs. Jas. White, Whittington	Miss B. M. Thompson.
Corbetton	Mrs. J. Blakely	Mrs. John Speer.
Honeywood	Mrs. Wm. Wrigglesworth	Mrs. G. A. East.
Horning's Mills	Mrs. Ira Eby	Miss Jennie Fox.
Laurel	Mrs. Robt. Currie	Mrs. Geo. Nelson.
Mono, Centre	Miss Barclay	Mrs. W. S. Martin.
Orangeville	Mrs. Endacott	Mrs. T. G. Legate.
Shelburne	Miss L. Besley	Mrs. G. Laking.
Violet Hill	Mrs. R. G. Canning	Miss S. Newton.
Whitfield	Mrs. Wm. Hall	Miss Effie Best.
Whittington	Mrs. S. J. Cruikshank	Mrs. L. C. Groskurth.

Institute.	President.	Secretary.
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Morewood	Mrs. A. Swerdfeger	Mrs. G. C. Cheney.
Morrisburg	Mrs. A. Casselman	Miss M. Gould Smith.
Williamsburg	Mrs. J. McIntosh	Miss J. E. Becksted.
Winchester Springs	Mrs. A. McIntosh	Miss M. E. McIntosh.
Durham, East—		
Bailieboro	Mrs. T. A. Skitch	Mrs. Jas. Greer.
Bewdley	Mrs. W. J. Cruse	Miss Bertha Ainlay.
Charlecote	Mrs. S. O. Taylor	Mrs. M. G. Welch.
Elizabethville	Mrs. R. J. Sowden, Garden Hill	Mrs. W. H. Beatty.
Fairmount	Mrs. J. F. Staples, Ida	Mrs. G. C. McBain, Morrow.
Garden Hill (Hope)	Mrs. A. C. Beatty	Miss S. E. Gray.
Lifford	Mrs. Mills	Miss W. Wilson.
Manvers	Mrs. D. H. Carscadden, Pontypool	Miss Nellie M. Syer, Pontypool.
Millbrook	Mrs. John Allen	Miss Eva Gillott.
Mount Pleasant	Mrs. Wm. Shield	Mrs. Albert Rutherford.
Port Hope	Mrs. W. L. Finlay	Mrs. F. L. Sculthorpe.
Durham, West—		
Bowmanville	Mrs. A. L. Nicholls	Mrs. W. W. Allin.
Clarke	Mrs. J. C. Hancock	Mrs. G. W. Jones, Newtonville.
Hampton	Mrs. A. Peters	Mrs. C. J. Kerslake.
Nestleton	Mrs. John Armstrong	Miss Eva L. Malcolm.
Orono	Mrs. A. A. Powers	Mrs. J. R. Cooper.
Solina	Mrs. S. Shortridge	Miss Minnie Baker.
Starkville	Mrs. J. Mulligan	Mrs. W. Hallowell.
Elgin, East—		
Aylmer	Mrs. D. McClennan	Miss N. Copeland.
Bayham	Miss Louise Mitchell, Straffordville	Mrs. A. B. Riddell.
Luton	Mrs. J. C. Haggen, Aylmer	Miss Inez Westover.
Lyons	Mrs. Wm. Adams	Mrs. Wm. Boyes. Asst. Mrs. Clayton Simpson.
Mapleton & Kingsmill	Mrs. Lewis McKenny, Kingsmill	Miss Essie Hoover, Kingsmill.
Springfield	Mrs. Jno. Charlton	Mrs. F. C. Muller.
Elgin, West—		
Dutton	Mrs. J. Kerr	Miss Mae Backus, Wallacetown.
Iona	Mrs. Frank H. Silcox	Miss Edna Lumley.
Rodney	Mrs. B. Eggert	Mrs. G. A. McLevey.
Wallacetown	Mrs. D. G. Graham	Miss M. Cameron.
Essex, North—		
Comber	Mrs. H. Allison	Mrs. I. M. Mitchell.
Maple Leaf (Maidstone S.S. 11)	Mrs. Geo. Switzer, Essex	Miss Sadie Wright, Essex.
Maidstone	Mrs. Richard Mooney	Mrs. John Scully.
Oldcastle	Mrs. Wm. Bulmer, Maidstone	Mrs. David Robinson, North Pelton.
Staples	Mrs. Geo. H. Bailey	Mrs. W. H. Parnell.
Woodslee	Mrs. Wm. Taylor	Mrs. Thos. Plant.
Essex, South—		
Amherstburg	Mrs. D. H. Terry	Mrs. John Doty.
Cottam	Miss Leeta Phillips	Mrs. Lewis Orton.
Essex	Mrs. Isaac Middleton	Mrs. Mary Gormley.
Harrow	Mrs. Ira Pastorius	Mrs. Angus P. Clark, Oxley.
Kingsville	Mrs. Theo. Kettle	Mrs. Walter Scratch.
Leamington	Miss Mary Noble	Mrs. J. M. Ainslie, Box 373.
Frontenac—		
Inverary	Mrs. F. S. Ferguson	Mrs. Geo. Leatherland, Latimer.
West Brook	Mrs. J. L. F. Sproule	Mrs. Geo. Kiell.

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Maxville	Mrs. J. D. McIntosh, Dominionville	Mrs. Lorne McLean.
Grenville, South—		
Brouseville	Mrs. Willard Adams	Mrs. A. H. Runions, Cardinal.
Burritt's Rapids	Mrs. Trueman Adams	Miss Alberta Kidd.
Maynard	Miss Maud Rowe	Mrs. Chas. Graham, Blue Church Road.
Shanley	Miss E. M. Hope	Miss Lila Gilmore.
Spencerville	Mrs. Lawrence	Miss Kathleen Duff.
Grey, Centre—		
Badjeros	Mrs. David Armour	Mrs. J. C. Finley.
Clarksburg	Mrs. S. T. M. Tait	Miss Sarah MacMurchy.
Dundalk	Mrs. J. R. McIntyre	Mrs. A. Montgomery. Treas. Mrs. T. Lockhart..
Eugenia	Mrs. Latimer	Mrs. Jake Williams.
Flesherton	Mrs. Albert Stewart	Mrs. Ed. Best.
Heathcote	Mrs. W. Robarts	Miss M. Myles.
Holland Centre	Mrs. Alex. Shute	Miss Beatrice McKinley.
Hopeville	Mrs. E. E. Hockridge	Mrs. Geo. Gilkes.
Kimberley	Mrs. B. A. Carruthers	Miss Ina Magee.
Markdale	Mrs. W. L. McFarland	Mrs. C. E. Armstrong.
Maxwell	Mrs. W. Wright	Miss B. MacKenzie. Asst. Mrs. J. Ross.
Mill Creek	Mrs. H. Conn	Miss S. A. Clark.
Priceville	Miss Jennie McArthur	Miss Jennie Watson.
Ravenna	Mrs. W. Buchanan	Miss Annie Gardiner.
Temple Hill	Mrs. L. Sewell, Rocklyn	Mrs. Geo Kelly, Rocklyn.
Vandeleur	Mrs. F. R. Boland	Mrs. W. Hutchinson.
Walter's Falls	Mrs. Thos. Barker	Miss Maggie King.
Williamsford	Miss Minnie Mitchell	Miss Alice Davey.
Grey, North—		
Annan	Mrs. Arthur Cameron, Leith	Miss Nellie J. Cannon.
Bognor	Miss B. Leonard, Woodford	Mrs. J. B. Ballantyne.
Brookholm	Mrs. J. E. Griffiths, 4th ave W., Owen Sound	Mrs. F. Mitchell, 466 17th St. W., Owen Sound.
Chatsworth	Mrs. J. Breese	Mrs. T. H. Collins. Treas. Miss A. Norton.
Clavering	Mrs. Thos. Lisk	Miss Lizzie Wilkinson.
Keady	Mrs. Jas. McKee	Miss E. C. Henderson.
Kemble	Mrs. James Gardner	Mrs. Louis Danard.
Kilsyth	Mrs. Geo. Wyllie	Mrs. W. G. Brock.
St. Vincent	Mrs. B. J. Long, Meaford	Mrs. W. J. Logan, Meaford.
Shallow Lake	Mrs. G. Ritchie	Mrs. A. Harrington.
Strathnairn	Mrs. John Douglas	Miss H. C. Free.
Grey, South—		
Ayton	Mrs. J. Schnell	Miss May Wenger.
Dromore	Mrs. Walter Hastie	Miss Mandy Renwick.
Durham	Mrs. J. W. Blyth, Varney	Miss Margaret J. McGirr.
Elmwood	Mrs. J. H. Dirstein	Mrs. Wm. L. Donney.
Fairbairn	Mrs. D. Gillis. Robb	Miss M. E. Iles, Robb.
Hanover	Mrs. Geo. Bohlander	Mrs. W. Bartleman.
Holstein	Mrs. J. R. Murdoch	Mrs. Geo. McFarland.
Louise	Miss Maggie Hastie	Miss Charlotte Pratt.
Haldimand—		
Caledonia	Mrs. J. W. Old	Miss Grace Richardson.
Canfield	Mrs. U. Stewart	Mrs. A. N. Bole.
Cayuga	Mrs. J. W. Sheppard	Mrs. R. H. Green.
Cheapside	Mrs. Donald McDonald	Miss Bertha Johnson.
Clanbrassil	Miss C. Harper, Cranston	Mrs. Jas. McConachie, Lythmore.
Decewsville	Mrs. D. Tate	Mrs. F. Warner.
Erie	Mrs. W. J. Devine	Miss Pearl Biggar.
Garnet	Mrs. W. F. Anguish, Hagersville	Miss Etta M. Kelly, Hagersville.

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Hagersville	Mrs. W. W. Jennings	Mrs. R. Hambleton.
Jarvis	Mrs. Albert Meehan	Miss Margaret Allen.
Nanticoke	Mrs. W. H. Evans	Miss G. Ponting.
		Asst. Miss M. E. Hallam.
Rainham, Centre	Mrs. L. F. Culver, R. F. D.	Mrs. R. F. Miller.
Sandusk	Mrs. Jos. Peacock	Mrs. Geo. McBurney.
Selkirk	Mrs. A. Lamb	Mrs. E. Lindsay.
Springvale	Mrs. Henry Risdill	Miss N. Kiefer, Box 44, Hagersville.
South Cayuga	Mrs. H. Laws, Bingham Road	Mrs. Arthur Meadows, Bingham Road .
York	Mrs. J. F. Nelles	Miss Jennie Renshaw.
		Treas. Mrs. F. Fearman.
Haliburton—		
Gooderham	Mrs. Lorne Hunter	Mrs. J. E. Pickens.
Haliburton	Mrs. G. Potts	Mrs. Wm. Curry.
Irondale	Miss Jean Graham	Mrs. J. P. Hartin.
Minden	Mrs. S. Phillips	Mrs. D. J. Hartle.
Halton—		
Acton	Mrs. Ed. Gamble	Mrs. R. E. Holmes.
Ballinafad	Mrs. D. Campbell	Mrs. G. C. Campbell, R. M. D., No. 1, Georgetown.
Burlington	Mrs. C. H. Emerson	Miss M. Finnamore.
Esquesing	Mrs. R. C. Nixon, Box 435, Georgetown	Miss Elizabeth Applebe.
Georgetown	Mrs. T. Coo, Limehouse	Miss Agnes Cole.
Kilbride	Mrs. Geo. Irwin	Miss W. Tweedle.
Nelson	Mrs. A. Freeman, Mt. Nemo	Miss Maggie Wilson, Mt. Nemo.
Norval	Miss Helen Smellie	Miss Annie A. Noble.
Palermo	Mrs. Mary Bowman	Miss E. J. Hager.
Sheridan	Mrs. Belford Savage, Oakville	Mrs. O. A. Lawrence.
Trafalgar	Mrs. A. A. Biggar	Mrs. W. T. Brown.
Hastings, East—		
Belleville	Mrs. E. S. Howard, Bridge St.	Mrs. W. B. Deacon, George St., Box 263.
Foxboro	Mrs. C. A. Loucks	Mrs. W. H. Frederick.
		Treas. Miss R. Denyes.
Melrose	Mrs. N. Oakley, Shannonville	Miss A. Long, Blessington.
Phillipston	Mrs. B. Phillips	Mrs. Walker Sayers.
Quinte	Mrs. W. A. Hall, Station P.O., Belleville	Miss Carrie Reid, Kingston Rd., Belleville.
Roslin	Mrs. Wm. Elliott	Miss Helen Rutherford.
		Treas. Mrs. J. Chisholm.
Tweed	Mrs. W. E. Gartley	Miss O. M. Alger.
Hastings, North—		
Bancroft	Mrs. Wm. Detlor	Mrs. A. H. Davy.
Eldorado	Mrs. Harry Jones	Miss Beulah Wiley.
Fort Stewart	————	Miss Laura Haryett.
Ivanhoe	Mrs. Andrew Downey, Crookston	Miss Nettie Benson.
L'Amable	Mrs. Jas. Spurr	Mrs. B. M. Power.
Madoc	Mrs. T. L. Nickle	Mrs. W. E. Connor.
Marmora	Mrs. Vernon Pringle	Miss E. Chisholm.
Queensboro	Mrs. Thomas Moore	Miss Nelly Howe.
Springbrook	Mrs. Fred Fenn, Bellview	Mrs. Jas. E. Mumby.
Stirling	Mrs. R. P. Coulter	Miss Bessie Ward.
Wellman's Corners	Miss E. Rannie	Mrs. C. Dracup.
Hastings, West—		
Chatterton	Miss S. Boardman	Miss Beatrice Guffin, Halloway.
Frankford	Mrs. Geo. Potter	Miss E. Fraser.
River Valley	Mrs. T. J. Smith, Stirling	Mrs. W. H. Hanna, Stirling
Wallbridge	Mrs. W. J. Sharp	Mrs. J. Phillips.

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Bluevale	Mrs. P. D. King	Miss Susie T. Collie.
Brussels	Mrs. Wm. Rands	Miss J. McLachlin.
Ethel	Mrs. M. Ferguson	Miss L. Hall.
Fordwich	Mrs. H. McCabe	Mrs. H. Collins.
Gorrie	Mrs. G. W. Knowlson	Mrs. Jas. Armstrong.
Jamestown	Mrs. D. M. Miller	Miss Flossie Scott.
Molesworth	Mrs. Wm. McLennan	Miss Ella Fraser.
Walton	Mrs. A. Gardiner	Miss Rose Simpson.
Huron, South—		
Egmondville	Mrs. Sproate	Mrs. Simpson.
Exeter	Mrs. M. Monroe	Mrs. A. Hastings.
Huron, West—		
Blyth	Mrs. P. Gardiner	Mrs. Robt. Wightman.
Clinton	Mrs. Ed. Munroe	Mrs. Thos. Mason.
Goderich	Mrs. Chas. Young	Miss M. E. Salkeld, Box 54.
Holmesville	Mrs. Lew. Tebbutt	Miss L. Ford.
Kintail	Mrs. Albert Beckett	Miss Sara A. Taylor.
Londesboro	Mrs. M. Brown	Mrs. R. J. Young.
St. Augustine	Miss Annie Flynn	Miss J. I. McAllister.
St. Helens	Mrs. Ed. Thom	Mrs. R. K. Miller.
Wingham	Mrs. John Wilson	Mrs. W. Bone.
Kent, East—		
Botany	Mrs. Geo. Leatherdale, Selton.	Miss Mary J. Dick, Selton.
Bothwell	Mrs. T. Knight	Mrs. J. J. Vincent.
Croton	Mrs. John McCutcheon	Miss Vivian E. Snary.
Guilds	Mrs. D. Campbell	Miss Gertie Nevills.
Highgate	Mrs. W. J. Smale	Mrs. Abe Millar.
Kent Bridge	Mrs. Stewart Langford	Mrs. M. West.
Morpeth	Mrs. Walter Springsteen	Mrs. Jos. H. Spencer.
Thamesville	Miss Margaret Sherman	Miss Anna J. Coutts.
Wabash	Mrs. John Liberty	Miss Hester Law, R. F. D. 1, Croton.
Kent, West—		
Cedar Springs		Miss F. Thompson.
Eberts	Mrs. Wm. McNeilage	Mrs. Jos. Forsyth.
Irwin	Mrs. Geo. Davidson, Chatham	Mrs. Thos. Irwin, Chatham.
Port Alma	Mrs. Alex. Crew	Mrs. J. R. Shanks.
Quinn	Mrs. Thos. Brown	Miss Hazel McLeod.
Tilbury	Mrs. Ed. Clark	Mrs. C. Brooks.
Valetta	Mrs. John Williams	Miss Bella Clark.
Wheatley	Miss Mary Plaston	Mrs. Byron Robinson.
Lambton, East—		
Aberarder	Mrs. D. Johnson	Miss Mae. McMillan.
Alvinston	Mrs. M. J. Campbell, R. R. No. 2.	Mrs. A. B. Connor.
Aughrim	Mrs. C. J. Wall, Cairo	Mrs. G. S. Silk, Inwood.
Arkona	Mrs. H. Rook	Miss A. Carnaghan.
Florence	Mrs. A. D. Adams	Miss Lou. Walker.
Forest	Mrs. J. Lochead	Mrs. R. J. Parker.
Inwood	Mrs. N. A. Campbell	Mrs. W. R. Dawson.
Shetland	Miss E. Dobbin	Mrs. Jas. Elliott, Florence.
Thedford	Mrs. (Dr.) Clarke	Mrs. G. Wright.
Warwick	Mrs. D. R. Falloon	Miss Ethel Thomson.
Watford	Mrs. Peter Dodds	Mrs. J. D. Brown.
Wyoming	Mrs. H. Montgomery	Miss A. Steadman.
Lambton, West—		
Becher	Mrs. Neil Grant, Duthill	Mrs. Wm McAllister, Duthill.
Brigden	Mrs. C. Watson	Miss. L. Stephens, Wheeler.
Colinville	Mrs. R. Goodall	Miss Mabel Cruickshank.
Lucasville	Mrs. F. C. Kewley, 4th Line, Sarnia	Miss Edna Millikin, 4th Line, Sarnia.
Oakdale	Mrs. John McCallum	Mrs. W. A. White.
Oil Springs	Mrs. J. H. Anderson	Mrs. A. W. Dewar.
Osborne	Mrs. H. Higgins, R. R. No. 2, Sarnia	Mrs. Robt. Sharpe, R. R., No. 2, Sarnia.

Institute.	President.	Secretary.
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Rutherford	Mrs. F. Emery	Mrs. Jno. Thomson.
Thornyhurst	Mrs. Wm. Leonhardt	Mrs. John Featherstone.
Wilkesport	Mrs. F. C. Pretty	Miss Verna J. Sipprell.
Lanark, North—		
Almonte	Mrs. G. M. Robb	Miss A. J. Forgie.
Clayton	Wrs. W. Tennant, Lloyd	Mrs. M. J. Hogan.
Lanark		Miss A. McDonald.
Lanark, South—		
Carleton Place	Miss Florence Edwards	Mrs. Robt. Cavanagh.
Maberly	Mrs. Geo. Buchanan	Mrs. Jno. Buchanan.
Perth	Mrs. (Dr.) Campbell	Miss Elsie McVeity.
Leeds—		
Delta	Mrs. T. J. Frye, Soperton	Mrs. R. I. Davidson.
Elgin	Mrs. E. McGhie	Mrs. Geo. Stanton.
Lansdowne	Mrs. Sam. Johnston	Mrs. J. H. Warren.
Newboro	Mrs. J. H. Butler	Miss Nellie McGonigal.
Seeley's Bay	Mrs. J. McElroy	Mrs. A. Sly.
Westport	Miss Celia Kearns	Miss Julia E. Foley.
Leeds, N., & Grenville—		
Merrickville	Miss Mary Pearson	Miss B. Muir.
Lennox—		
Adolphustown	Mrs. W. D. Roblin, Conway	Mrs. David W. Roblin, Parma
Conway	Mrs. C. C. Young, Sandhurst	Mrs. Geo. Switzer, Sandhurst.
Lincoln—		
Beamsville	Mrs. A. P. Thomas	Miss N. Rowe.
Campden (Union)	Miss Laura Houser	Mrs. W. Honsberger, Jordan.
Grimsby	Mrs. W. A. Brownlee	Mrs. R. J. Snetsinger.
Niagara-on-the-lake	Mrs. F. J. Rowland	Mrs. L. Chamberlain.
Queenston	Mrs. H. C. Bradley	Miss E. L. Lowrey.
Middlesex, East—		
Belmont	Mrs. W. M. Wilkins	Mrs. A. W. Venning.
Birr	Miss Elizabeth Walden, Elginfield	Miss Dora Stewart, Elginfield. Treas. Miss Avice Scott.
Crampton	Miss G. Craik	Miss A. Lapham.
Harrietsville	Mrs. A. McCallum, Mossley	Mrs. C. B. Adams.
Hyde Park	Mrs. J. Colville	Mrs. D. A. Gray.
Thorndale	Mrs. Robert Stephenson	Miss Emma Harding.
Wellburn	Mrs. Wm. Louch	Mrs. T. B. Patterson, R.R., No. 8, St. Mary's.
Wilton Grove	Mrs. Geo. Elliot	Mrs. Norman Anderson, R.R., No. 9, London.
Middlesex, North—		
Ailsa Craig	Mrs. Wm. McLurg	Mrs. McEwen.
Beechwood	Mrs. John Currie, Fernhill	Mrs. William Chelew, Fernhill.
Coldstream	Miss Ethel Bycraft	Miss Florence Hamacher, Poplar Hill.
Greenway	Mrs. W. J. Brown	Miss Mary A. Hutchinson, Hutchinson.
Lobo	Mrs. John A. Campbell, Coldstream	Miss Ella M. Graham.
Lucan	Mrs. D. B. McVicar	Mrs. E. B. McTurk.
Mooresville	Mrs. Hiram Windsor, Clandeboye	Miss E. Grundy, Clandeboye.
Parkhill	Mrs. D. N. Macleod	Miss D. C. J. Rogers.
Sylvan	Mrs. Stephen A. Loomis R. R., No. 8, Parkhill	Miss Katharine F. McIntosh, Box 10, Arkona.
West McGillivray	Mrs. Andy Erskine, Lieury	Miss Minnie Amos, Clandeboye.
Middlesex, West—		
Appin	Mrs. Jno. McFie	Miss Ivy McDonald. Treas. Miss Anna Hyttennauch.
Kerwood	Mrs. T. F. Mills	Mrs. J. M. Brunt.
Mount Brydges	Mrs. O. Monger	Mrs. (Dr.) Woods.
Napier	Mrs. William Gardiner	Miss Lulu McLean, Kerwood.
Newbury	Mrs. D. Patterson	Mrs. L. W. Edward.
Strathroy	Mrs. Jas. Bogue	Mrs. M. W. Cummiford.
Wardsville	Mrs. A. Branton	Miss M. Mary Martyn.

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Canboro	Mrs. W. A. Lymburner	Miss Jennie Carey.
Dunnville	Mrs. Robt. Reid	Mrs. E. Rittenhouse. Asst. Mrs. J. T. Massen.
Fulton	Mrs. Harley Merritt	Mrs. David Jacobs, Grassey.
Pelham Centre	Mrs. J. C. Leppert, Fenwick	Mrs. L. S. Haney, Fenwick.
Silverdale (Rosedene)	Mrs. R. Brown, Silverdale Sta.	Miss A. Willcox, Silverdale Sta.
Smithville	Mrs. F. Hays	Mrs. J. E. Roszel.
Winger	Mrs. Joseph Gilmore	Mrs. Jesse Beachin.
Muskoka, Centre—		
Allansville	Miss Coldwell, Utterson	Miss M. Proudfoot.
Port Sidney	Mrs. W. Low	Mrs. A. McGinnis.
Ufford	Mrs. Chas. Oldham	Mrs. Elijah Veitch.
Muskoka, North—		
Ashworth	Mrs. Wm. M. Tipper, Etwell	Mrs. Wm. DeMaine.
Aspdin	Mrs. D. Compton	Mrs. Jos. Clarke.
Birkendale	Mrs. C. J. C. Crump, Fox Point	Mrs. Margaret Robson.
Brunel	Mrs. H. Young, Emberson	Mrs. Gifford Holinshead, Huntsville.
Dwight	Miss Pauline Morton	Mrs. Geo. Keown, Jr.
Ravenscliffe	Mrs. E. W. Tipper	Mrs. A. DeForest.
Silverdale	Mrs. S. Bloss	Mrs. Lydia Spiers, Martin Siding.
Muskoka, South—		
Bardsville	Mrs. Thomas Donally	Mrs. Herman L. Goltz.
Baysville	Mrs. Emma Ellis	Mrs. Jas. A. Rhodes.
Bracebridge	Mrs. W. Galbraith, Box 526	Mrs. H. Corrigan, Box 251.
Germania	Mrs. John Thompson, Uffington	Miss Julia Wise.
Gravenhurst	Mrs. W. R. Emmett, Box 96	Mrs. L. M. Harris, Box 177. Treas. Mrs. Fisher.
Monck	Mrs. Geo. Glover, Bracebridge	Mrs. Thorold M. Lochhead, B. 10, Bracebridge.
Muskoka Falls	Mrs. R. Lahney	Mrs. H. Speedie.
Reay	Mrs. Donald Morrison	Miss Thelma Galbraith.
Sanford	Mrs. Wm. Killen, Port Carling	Mrs. A. L. Casselman, Port Carling.
South Macaulay	Mrs. A. Leeder, B. 113, Bracebridge	Mrs. F. Denniss, L. B. 231, Bracebridge.
Windermere	Mrs. F. Forge	Miss Gertrude Aitken.
Norfolk, North—		
Courtland	Mrs. Frank Booth	Mrs. J. S. Benn.
Delhi	Mrs. G. A. Smith	Miss Lulu Kitchen. Asst. Mrs. T. E. Morgan.
Guysboro	Mrs. Z. A. Leach, Straffordville	Miss J. A. Watson, Acacia.
Hartford	Mrs. L. N. Wilcox	Mrs. A. Symington.
Lynnville	Mrs. Harvey Potts	Mrs. John Innis. Treas. Mrs. James Kellam.
Simcoe	Mrs. A. R. DeCon	Mrs. E. C. Barber.
Windham Centre	Mrs. S. Camfield	Miss Agusta Herron.
Northumberland., E.—		
Brighton	Mrs. A. O. Mabee	Mrs. J. F. Clarke.
Campbellford	Mrs. C. Macoun	Mrs. C. Langmuir.
Castleton	Mrs. George Campbell	Mrs. W. J. Harper, Oak Heights.
Codrington	Mrs. J. B. Moran	Miss Ella Plumton.
Dundonald	Mrs. M. Dudley	Mrs. David Bland, B. 258, Colborne.
Hilton	Mrs. Keith Montgomery, Hilton	Mrs. R. O. Morrow, Hilton.
Menie	Mrs. Wm. Rannie	Miss Mabelle Stewart.
Percy	Mrs. R. Haney, Brickley	Mrs. Arthur Partridge, Warkworth.
Wooler	Mrs. Zella McColl, Box 48	Miss Maud Ruttan.
York Road	Mrs. R. M. Maitland, Brighton	Miss Anna Little, Trenton.

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Centreton	Mrs. Ezra Bradley, Eddystone	Mrs. Frank Birney.
Cobourg	Mrs. Fred Precious	Mrs. R. C. Allan.
Coldsprings	Mrs. Edwin Lacey, Camborne	Miss Mary Jibb.
Elmview	Mrs. Herbert Bell, Precious Corners	Miss Vergie Morton.
Fenella	Mrs. J. W. Jibb	Mrs. M. Davey.
Grafton	Mrs. J. Usher	Mrs. C. E. Roberts.
Harwood	Mrs. Geo. Isaac	Miss L. Stevenson.
Roseneath	Mrs. Orra Varcoe	Mrs. J. McEllenborough.
Ontario, North—		
Altona	Miss Charlotte Hoover	Miss Sadie Stewart.
Brechin	Mrs. M. B. Dack	Mrs. Ada M. Stewart.
Gamebridge	Mrs. J. B. Warren, Beaverton	Mrs. J. D. Bruce.
Goodwood	Miss Edith Pugh	Mrs. R. Gray.
Sandford	Mrs. Walter Lapp, Uxbridge	Mrs. Arthur Smith.
Sunderland	Mrs. W. T. Bagshaw	Mrs. H. Baldwin.
O'Connell	Mrs. W. M. Shields	Miss Jennie Smith, Rathburn.
Zephyr	Mrs. R. Harman	Miss Martha Kester.
Ontario, South—		
Brooklin	Mrs. Fred Holliday	Miss Jessie M. Webber.
Brougham	Mrs. Boyde Burke	Miss Lillie Holtby.
Claremont	Mrs. C. J. Brodie	Miss Sara E. Evans.
Columbus	Mrs. P. Cameron	Miss Louie E. James.
Greenbank	Mrs. Geo. Real	Mrs. F. McKague.
Kinsale	Mrs. T. Richardson	Mrs. R. R. Mowbray.
Pickering	Mrs. Geo. Palmer	Miss Evelyn Holt.
Shirley	Mrs. Geo. Kilpatrick, Prince Albert	Mrs. J. B. Graham, Purple Hill.
Whitby	Mrs. Geo. A. Ross	Miss Fannie Bateman.
Whitevale	Mrs. A. E. Major	Mrs. M. Reesor.
Oxford, North—		
Braemar	Mrs. A. S. MacKay, R.R. No. 3, Woodstock	Miss Maggie Murray, R.R. No. 3.
Bright	Mrs. D. Aldridge	Mrs. L. B. Avery.
Drumbo	Mrs. J. D. Cowan	Miss Agnes Paxton.
Embro	Mrs. A. McKinnon	Miss Marion McLeod.
Harrington	Mrs. Angus Matheson, Maplewood	Miss Olive Matheson.
Kintore	Mrs. John McPherson	Miss Norah Armstrong.
Lakeside	Mrs. A. Whetstone	Miss C. Vining.
Plattsville	Miss M. Smart	Mrs. H. G. Murray.
Princeton	Mrs. Stitt	Mrs. R. Rutherford.
Thamesford	Mrs. W. F. Babb	Mrs. F. O. Kester.
Oxford, South—		
Beachville	Mrs. J. Collier	Miss E. McInnes.
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Currie	Mrs. Thos. Sears	Miss Ella Ross.
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Institute.	President.	Secretary.
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Hawkesville	Mrs. L. Thom	Mrs. L. Weber.
Linwood	Mrs. T. Crookshanks	Miss Irene Berlet.
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Woodbridge	Mrs. W. O. Duncan, Emery	Miss Mary J. Burton.
Weston	Mrs. O. Master	Miss Alice Bull.

NORTHERN BRANCHES.

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West Korah	Mrs. Chas. Nixon, Box 577, Sault Ste. Marie	Miss Fannie Knight, Box 976, Sault Ste. Marie.
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West Ft. William	Mrs. Jas. Gowanlock	Mrs. B. Allen, 421 S. Archibald Street.

REPORT

OF THE

WOMEN'S INSTITUTES

OF THE

Province of Ontario

1912

PART II.

List of Meetings and Sealers

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1912.

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West,
TORONTO.

Women's Institutes of Ontario

SUMMER SERIES OF MEETINGS

ANNOUNCEMENT OF SUPERINTENDENT 1912.

Part II. of the Women's Institute Report, presented herewith, contains announcement of summer series of meetings, including speakers and their subjects.

The report of the Annual Convention, selected papers, financial and statistical statements, and list of Institutes with officers will be found in Part I.

Lady lecturers were sent to some 460 meetings held under the joint auspices of the Farmers' and Women's Institutes during the winter season of 1911-12, while speakers are being furnished for over 700 meetings during late May, June, and early July.

The general good work being done by the Institutes has created a demand for organization at many new points until we now have 687 branches in 92 electoral districts with a membership of over 20,000. The total attendance at Women's Institute meetings in 1910-11 was 152,762, with a prospect of considerably exceeding this for the Institute year drawing to a close.

The Women's Institutes continue to stand for all that is uplifting in home and community life. The success of the individual organization depends to a large extent upon the ability of officers and members to introduce those features of work which will be of the greatest benefit to the individual and attract the attention and secure the co-operation of all classes in the community. While the Institutes have continued to give more or less attention to purely household matters, many are doing special work of a public or semi-public nature. Rest rooms have been established for the convenience of the members and their friends, Travelling Libraries have been circulated, local halls have been improved, many villages and country places have been beautified by the planting of trees, the putting down of sidewalks, etc. A hearty co-operation with the teachers and School Boards has resulted in improvement in sanitary conditions in the schools. The welfare of the child is receiving increasing attention from year to year, and, altogether, the Women's Institutes are doing for the rural districts of Ontario a most valuable work.

The success of the summer meetings will depend largely upon the readiness with which the officers and members co-operate in completing arrangements for the meetings and advertising the same. The officers should see that definite plans are made to insure the success of each meeting. The success of a public gathering depends largely upon the arrangement of details, and we must look to the officers for this. By a hearty co-operation on the part of all concerned, we can make the coming series of meetings the most successful in the history of the Ontario Women's Institutes.

Advice to District Officers.

The District Officers are held responsible for the following:—

(*a*) Arrange for date and places of district annual meeting in accordance with the wishes of the majority of the branches. Advertise this thoroughly by sending notice to the representatives appointed by the various branches, as well as to the secretary of each branch. This meeting should be held not later than the 20th of June.

(*b*) Advertise all meetings included in summer series. See pages 39 and 40 of Hand Book for directions.

(*c*) Arrange a definite programme for each point. Only one speaker will be furnished for the great majority of meetings. It will, therefore, be necessary to furnish some local assistance. It would be well for one of the district officers to give a short address at each place of meeting. A short paper or address from some local person upon a subject of general interest to the members should be arranged for and one or two selections of music as well.

Advertise for a definite hour, say 2 or 2.30 p.m.; and, if an evening session is desired, 8 p.m., and start the meeting at the time announced.

One session is preferable to two. We strongly advocate an afternoon meeting only.

Have a definite understanding with the officers at each point as to method and extent of advertising.

Utilize the local papers in advertising.

See that definite announcements are made in all advertisements as to hall or other place of meeting at each point to be visited.

Make your announcement for each session as full as possible, *i.e.,* give the names of the speakers and the topics to be taken up by them.

In some places it is not necessary to get out large posters to advertise the meetings. In many sections, however, the large poster will result in a much increased attendance.

When meetings are announced for places at which there is no organization, pay special attention to the matter of advertising. Secure some local persons to assist you and become responsible for hall, entertainment, etc.

(*d*) Arrange for *transportation* and *entertainment* of the delegate or delegates sent to the summer series of meetings, except from Saturday night to Monday morning and when travelling between ridings. In making arrangements for transportation, please keep in view the route which will likely be taken by the delegate in reaching the place to be first visited after leaving your riding.

Send copies of advertising material to the delegate or delegates and notify them as to what arrangement has been made for transportation between places in the ridings and how to reach the first place of meeting.

Notify the delegate as to when and where she will be met by the district officer or officers.

ADVICE TO BRANCH OFFICERS.

Give your district secretary full particulars regarding arrangements for your local meetings, indicating the addresses, musical selections, or the assistance which will be given the delegate; also let the district secretary know what advertising you are prepared to do locally. See pages 39 and 40 of the Hand Book for advice regarding advertising. Do not fail to have your members give invitations to other women in the district to attend the meetings.

The branch is responsible for the entertainment of the delegates, and it may be that you can render assistance in the transportation of delegates as well. Notify the district secretary as to what you are prepared to do.

See that the hall in which the meeting is to be held is properly cleaned, lighted and ventilated

Write direct to delegate at least two weeks before your meeting is to be held, at her home address, or at some point in the series of meetings, notifying her of the topics chosen for your local meeting. Notify the delegate as to what provision has been made for her entertainment.

When only one delegate is furnished by the Department, it is advisable to have only the one session, an afternoon meeting. Two sessions will be allowed only upon condition that considerable assistance is given at the evening meeting.

Delegates are not prepared to attend Saturday evening meetings.

Lunches and picnics are an enjoyable feature of the summer meetings. The delegates should, however, be given an opportunity for proper rest and regular meals.

Make definite arrangements for your branch annual meeting to be held at least two weeks before the district annual; and see to it that a report of the meeting, together with the names of the representatives appointed to attend the district annual meeting, is sent to the district secretary at least ten days before the date of district annual meeting. It is advisable to name persons to take place of regularly appointed representatives who cannot attend District Annual. It is desirable to have every branch fully represented at District Annual.

It is well for Institutes located near each other not to choose the same subjects, and thus encourage visiting among adjoining Institutes.

Those Institutes which have printed programmes of the monthly meetings should send one to the delegate, in order that she may know the nature of the work done and thus be in a position to give advice as to ways and means of making the work of still greater interest and value. It would also be well to inform the delegate as to some of the needs and difficulties in connection with the Institute.

General Notes.

Ask questions at the meeting, not afterwards; then all will get the benefit of the answers.

Bring notebooks and pencils with you.

If the Institute has been a benefit to you, ask others to join.

You cannot expect to have successful meetings without advertising thoroughly.

Do not advertise meetings for Saturday evenings.

Women and girls over fourteen will be made welcome at the afternoon meetings. Both sexes of all ages are invited to the evening sessions.

The delegates who will attend the summer series of meetings will attend a conference of workers in Toronto on May 24th and 25th, with a view to receiving instruction regarding the work in hand and to benefit from a general conference among those who have experience in the field. An exchange of views and experience on the part of the workers, and a general understanding as to the policy of the Department will tend to make the coming series of more than usual benefit to the members.

While the Department and delegates have an important part to perform in making the summer series a success, a great responsibility rests upon the local officers in thoroughly advertising the meetings and in urging the members and their friends to attend. Do not fail to notify the delegates as to the arrangements which have been made.

Geo. A. Putnam,
Superintendent.

Parliament Buildings, Toronto.
April, 1912.

SUMMER SERIES OF WOMEN'S INSTITUTE MEETINGS, 1912.

(See Page 29 for Index.)

Afternoon sessions will, for the most part, be held at 2 or 2.30 o'clock, and evening sessions at 8 o'clock. The officers of the Institutes concerned, however, have the privilege of choosing the exact hour and making local announcements accordingly. "Aft" indicates an afternoon session only—"Eve" an evening session only. At other places it is expected an afternoon session will be held, and possibly an evening session. Readers are referred to local announcements for full particulars as to speakers, subjects, hour of meeting, etc.

DIVISION 1.—Dr. Laura Hamilton, Toronto, May 27 to July 5.
Miss Mary McKenzie, Toronto, June 17 to 22.

1.	Stamford, Southend Schoolhouse	Welland	aft.	May	27
2.	Allanburg, Township Hall	"	aft.	"	28
3.	Quaker Road, Schoolhouse	"	aft.	"	29
4.	Welland, Town Hall	"	aft.	"	30
5.	Crowland, Town Hall	"	aft.	"	31
6.	Willoughby, Township Hall	"		June	1
7.	Stevensville, Miss Tytherleigh's Home	"	aft.	"	3
8.	Bowen Road, Schoolhouse	"	aft.	"	4
9.	Ridgeway, Library Room	"		"	5
10.	Humberstone, Town Hall	"	aft.	"	6
11.	Fulton, Mrs. M. Merritt's Home	Monck	aft.	"	7
12.	Rosedene, Mrs. C. Wills' Home	"	aft.	"	8
13.	Smithville, Brant's Hall	"		"	10
14.	Fenwick, Methodist Church	"		"	11
15.	Winger, Disciple Church	"		"	12
16.	Attercliffe Station Mrs. T. Teeft's Home	"	aft.	"	13
17.	Canboro, Mrs. W. A. Lymburner's Home	"		"	14
18.	Dunnville, Methodist Church	"	aft.	"	15
19.	Canfield, Church	Haldimand	aft.	"	17
20.	York	"	aft.	"	18
21.	Caledonia	"	aft.	"	19
22.	Cayuga, Court House	"	aft.	"	20
23.	Decewsville, Hall	"	aft.	"	21
24.	Gill, Methodist Church	"	aft.	"	22
25.	Clanbrassil, Church Basement	"	aft.	"	24
26.	Springvale	"	aft.	"	25
27.	Hagersville, Council Chamber	"	eve.	"	25
28.	Garnet	"	aft.	"	26
29.	Jarvis	"	aft.	"	27
30.	Erie	"	aft.	"	28
31.	Sandusk, School House	"	aft.	"	29
32.	Nanticoke	"	aft.	July	2
33.	Cheapside	"	aft.	"	3
34.	Rainham Centre	"	aft.	"	4
35.	South Cayuga	"	aft.	"	5

DIVISION 2.—Dr. Annie Backus, Aylmer, May 27 to July 5.
Miss D. I. Hughes, Toronto, May 27 to June 5.

1.	Niagara-on-the-Lake, Masonic Hall	Lincoln	aft.	May	27
2.	Queenston, Miss Prest's Home	"	aft.	"	28
3.	Jordan Harbor, Mrs. W. S. Duncan's Home.	"	aft.	"	29
4.	Beamsville, Reception Hall	"	aft.	"	30
5.	Grimsby, Snetsinger's Hall	"	aft.	"	31

6.	Winona	South Wentworth	aft.	June	1
7.	Tapleytown, Mrs. A. Penfold's Home	“ “	aft.	“	3
8.	Stoney Creek, Council Chamber	“ “	aft.	“	4
9.	Mt. Hamilton, Mrs. Farr's Home	“ “	aft.	“	5
10.	Hannon	“ “	aft.	“	6
11.	Binbrook, Mrs. J. Guyatt's Home	“ “	aft.	“	7
12.	Blackheath	“ “	aft.	“	8
13.	Glanford	“ “	aft.	“	10
14.	Carluke, Mrs. L. Smith's Home	“ “	aft.	“	11
15.	Ancaster, Mrs. Bevan's Home	“ “	aft.	“	12
16.	Jerseyville, Lee's Hall	“ “	aft.	“	13
17.	St. George, Mrs. W. H. Ker's Home	North Brant	aft.	“	14
18.	Glen Morris, Foresters' Hall	“ “	aft.	“	15
19.	Paris, Central School	“ “	aft.	“	17
20.	Tranquility, Moyle Schoolhouse	“ “	aft.	“	18
21.	Tutela, Mrs. Thos. Hargreaves' Home	“ “	aft.	“	19
22.	Onondaga, Mrs. C. Edward's Home	“ “	aft.	“	20
23.	Langford, Mrs. T. W. Westbrooke's Home	“ “	aft.	“	21
24.	Cainsville, Mrs. G. H. Shaver's Home	“ “	aft.	“	24
25.	Orkney, Private Residence	North Wentworth	aft.	“	25
26.	Rockton, Township Hall	“ “	aft.	“	26
27.	Sheffield, Private Residence	“ “	aft.	“	27
28.	Freelton, Mrs. (Dr.) McQueen's Home	“ “	aft.	“	28
29.	Carlisle, Church	“ “	aft.	July	2
30.	Millgrove, Town Hall	“ “	aft.	“	3
31.	Waterdown, McGregor's Hall	“ “	aft.	“	4
32.	West Flamboro'	“ “	aft.	“	5

Division 3.—Mrs. W. J. Hunter, Pleasant.

1.	Botany, Presbyterian S. S. Room	East Kent	aft.	May	27
2.	Thamesville, I. O. O. F. Hall	“ “	aft.	“	28
3.	Croton, Young's Hall	“ “	aft.	“	29
4.	Wabash, Mrs. Joseph Anderson's Home	“ “	eve.	“	30
5.	Kent Bridge, Langford's Hall	“ “	aft.	“	31
6.	Eberts, Township Hall	West Kent	aft.	June	1
7.	Irwin, Union Hall	“ “	aft.	“	3
8.	Valetta, Township Hall	“ “	aft.	“	4
9.	Quinn, Union Hall	“ “		“	5
10.	Tilbury, Presbyterian Church	“ “		“	6
11.	Comber, Temperance House	North Essex	aft.	“	7
12.	Staples, Hall	“ “	aft.	“	8
13.	Woodslee, Pembleton's Hall	“ “	aft.	“	10
14.	Maidstone, Schoolhouse No. 11	“ “	eve.	“	11
15.	Maidstone Cross, R. C. Hall	“ “	aft.	“	12
16.	Oldcastle, Town Hall	“ “	aft.	“	13
17.	Essex, Oddfellows' Hall	South Essex	aft.	“	14
18.	Amherstburg, Town Hall	“ “	aft.	“	15
19.	Harrow, Methodist Church	“ “	aft.	“	17
20.	Kingsville, Council Chamber	“ “	aft.	“	18
21.	Cottam, Town Hall	“ “	aft.	“	19
22.	Leamington, Council Chamber	“ “	aft.	“	20
23.	Wheatley	West Kent	aft.	“	21
24.	Port Alma, Mrs. D. Crew's Home	“ “		“	22
25.	Cedar Springs	“ “		“	24
26.	Guilds, Mrs. A. Wiley's Home	East Kent	aft.	“	25
27.	Morpeth	“ “		“	26
28.	Highgate, Methodist Church	“ “	aft.	“	27
29.	Rodney, Town Hall	West Elgin	aft.	“	28
30.	Dutton, Scouler's Hall	“ “	aft.	“	29
31.	Wallacetown	“ “		July	1
32.	Iona, Baptist Church	“ “		“	2

Division 4.—Mrs. E. B. McTurk, Lucan.

1.	Hartford, Mrs. I. Wilcox's Home	North Norfolk		May	27
2.	Windham Centre	“ “		“	28
3.	Simcoe, Council Chamber	“ “	aft.	“	29
4.	Courtland, Town Hall	“ “		“	30
5.	Guysboro, Orange Hall	“ “	aft.	“	31

6.	Bayham, Church	East Elgin	aft.	June	3
7.	Luton, Church	“ “		“	4
8.	Grovesend	“ “		“	5
9.	Aylmer, Town Hall	“ “		“	6
10.	Mapleton, Mrs. D. D. Finch's Home	“ “	aft.	“	7
11.	Lyons, Town Hall	“ “		“	8
12.	Springfield, Muller's Hall	“ “		“	10
13.	Brownsville	South Oxford		“	11
14.	Tillsonburg, Council Chamber	“ “	aft.	“	12
15.	Mount Elgin, Methodist Church	“ “	aft.	“	13
16.	Springford, Mrs. F. C. Anslie's Home	“ “	aft.	“	14
17.	Norwich, Baptist Church	“ “	aft.	“	15
18.	Burgessville, Baptist Church	“ “	aft.	“	17
19.	Curries, Methodist Church	“ “	aft.	“	18
20.	Beachville, Library Hall	“ “	aft.	“	19
21.	Thamesford, Private Residence	North Oxford	aft.	“	20
22.	Kintore, I.O.O.F. Hall	“ “		“	21
23.	Lakeside, Hall	“ “	eve.	“	22
24.	Harrington, Hill's Hall	“ “	aft.	“	24
25.	Embro, Public Library	“ “	aft.	“	25
26.	Braemar, Gospel Hall	“ “		“	26
27.	Bright, Presbyterian Church	“ “	aft	“	27
28.	Plattsville, Methodist S. S. Room	“ “	aft.	“	28
29.	Drumbo, Royal Hotel Parlor	“ “	aft.	“	29
30.	Princeton, Mrs. W. C. Freeman's Home	“ “	aft.	July	2

Division 5.—Miss B. Gilholm, Bright.

1.	Lucasville, Private Residence	West Lambton	aft.	May	27
2.	Osborne	“ “	aft.	“	28
3.	Colinville, C. O. F. Hall	“ “	aft.	“	29
4.	Brigden, Taylor's Hall	“ “	aft.	“	30
5.	Wilkesport, Methodist Church	“ “	aft.	“	31
6.	Thornyhurst, Ward Line Church	“ “	aft.	June	1
7.	Port Lambton	“ “	aft.	“	3
8.	Beecher, Foresters' Hall	“ “	aft.	“	4
9.	Rutherford	“ “		“	5
10.	Oakdale, Presbyterian Church	“ “	aft.	“	6
11.	Newbury	West Middlesex	aft.	“	7
12.	Wardsville, Town Hall	“ “	eve.	“	7
13.	Appin, Town Hall	“ “	aft.	“	8
14.	Mt. Brydges, Methodist Church	“ “	aft.	“	10
15.	Strathroy, St. John's Hall	“ “	aft.	“	11
16.	Napier, Town Hall	“ “	aft.	“	12
17.	Kerwood, I. O. O. F. Hall	“ “	aft.	“	13
18.	Lobo, Masonic Hall	North Middlesex		“	14
19.	Coldstream, Town Hall	“ “		“	15
20.	Beechwood, Hall	“ “	aft.	“	17
21.	Ailsa Craig, Town Hall	“ “		“	18
22.	West McGillivray, Hall	“ “		“	19
23.	Sylvan, Private Residence	“ “	aft.	“	20
24.	Greenway, Wilson's Hall	“ “		“	21
25.	Parkhill, Institute Rooms	“ “	aft.	“	22
26.	Mooresville, Maccabees Hall	“ “	aft.	“	24
27.	Lucan, Carlisle Parish Hall	“ “	aft.	“	25
28.	Birr, Private Residence	East Middlesex	aft.	“	26
29.	Hyde Park, Town Hall	“ “		“	27
30.	Wellburn, Private Residence	“ “	aft.	“	28
31.	Thorndale, Mrs. J. Fitzsimon's Home	“ “	aft.	“	29
32.	Crampton, Mrs. Jenkin's Home	“ “		July	2
33.	Harrietsville, Mrs. J. Jelly's Home	“ “		“	3

Dates to be arranged later for meetings at Petrolea, Oil Springs, Warwick, and Shetland.

Division 6.—Mrs. W. B. Ferguson, Strathroy.

1.	Arthur, Council Chamber	East Wellington	aft.	May	27
2.	Damascus, Township Hall	“ “	aft.	“	28
3.	Kenilworth, Arthur Township Hall	“ “	aft.	“	29
4.	Mount Forest, Allen's Hall	“ “	aft.	“	30
5.	Conn, School House	“ “		“	31

6.	Cedarville, Orange Hall'	East Wellington		June	1
7.	Colbeck, Hall	“ “	aft.	“	3
8.	Grand Valley, Hall	“ “		“	4
9.	Erin, Town Hall	Centre Wellington	aft.	“	5
10.	Ospringe, Mrs. H. R. McCutcheon's Home	“ “		“	6
11.	Coningsby, Mrs. Wm. Burrow's Home	“ “	aft.	“	7
12.	Hillsburg, Disciples Church	“ “	aft.	“	8
13.	Marsville, Orange Hall	“ “	aft.	“	10
14.	Orton, Methodist Church	“ “	aft.	“	11
15.	Belwood, Town Hall	“ “	aft.	“	12
16.	Metz, Presbyterian Church	“ “	aft.	“	13
17.	Cumnock, Presbyterian Church	“ “	aft.	“	14
18.	Bethany, Methodist Church	“ “	aft.	“	15
19.	Paisley Block, Private Residence	South Wellington	aft.	“	17
20.	Arkell, School House	“ “	eve.	“	18
21.	Acton, Council Chamber	Halton	aft.	“	19
22.	Ballinafad, Mrs. Smith's Home	“	aft.	“	20
23.	Georgetown, Town Hall	“	aft.	“	21
24.	Norval	“	aft.	“	22
25.	Stewartown	“	aft.	“	24
26.	Kilbride, Mrs. R. Raspberry's Home	“		“	25
27.	Sheridan, Temperance Hall	“	aft.	“	26

DIVISION 7.—Mrs. M. N. Norman, Toronto.

1.	New Dundee, Private Residence	South Waterloo	aft.	May	27
2.	Ayr, Foresters' Hall	“ “	aft.	“	28
3.	Central Dumfries, Private Residence	“ “	aft.	“	29
4.	Branchton, Foresters' Hall	“ “	aft.	“	30
5.	Galt, I. O. F. Hall	“ “	aft.	“	31
6.	Preston, Private Residence	“ “	aft.	June	1
7.	Hespeler	“ “	aft.	“	3
8.	St Jacobs, Mrs. Filsinger's Lawn	“ “	aft.	“	4
9.	Winterbourne, St. Andrew's Hall	North Waterloo	aft.	“	5
10.	Floradale, Private Residence	“ “		“	6
11.	Hawkesville, Ballard's Hall	“ “	aft.	“	7
12.	Linwood, Hall	“ “	aft.	“	10
13.	Wellesley, Town Hall Annex	“ “	aft.	“	11
14.	Streetsville, Hall	Peel	aft.	“	12
15.	Brampton, Mrs. J. A. McClure's Home	“	aft.	“	13
16.	Malton	“	aft.	“	14
17.	Cheltenham	“	aft.	“	15
18.	Belfountain, Private Residence	“	aft.	“	17
19.	Alton, Science Hall	“		“	18
20.	Mono Mills, Hall	“	eve.	“	19
21.	Palgrave, Town Hall	“		“	20
22.	Kleinburg, Private Residence	West York	aft.	“	21
23.	Woodbridge, Orange Hall	“ “		“	22
24.	Maple, Mrs. H. C. Bailey's Home	“ “	aft.	“	24
25.	Elia, Mrs. E. Smithson's Home	“ “	aft.	“	25
26.	Thistleton	“ “	aft.	“	26
27.	Weston, Town Hall	“ “	aft.	“	27
28.	Islington	“ “		“	28
29.	Mimico	“ “	aft.	“	29

DIVISION 8.—Mrs. C. H. Burns, Toronto.

1.	Ohsweken, Council Chamber	South Brant	aft.	May	27
2.	East Oakland Private Residence	“ “	aft.	“	28
	School House	“ “	eve.	“	28
3.	Scotland, Mrs. Dr. Anderson's Home	“ “	aft.	“	29
4.	Mohawk, Mrs. McAllister's Home	“ “	aft.	“	30
5.	New Durham, Methodist Church S. Room	“ “	aft.	“	31
6.	Cathcart, Mrs. Kinsale's Home	“ “	aft.	June	1
7.	Burford, Rutherford's Hall	“ “	aft.	“	3
8.	Whiteman's Creek, Mrs. Tisdale's Home	“ “	aft.	“	4
9.	Falkland, Mrs. Tennant's Home	“ “	aft.	“	5
10.	Tavistock, Society Hall	South Perth	aft.	“	6
11.	St. Paul's, Township Hall	“ “	aft.	“	7
12.	St. Mary's, Town Hall	“ “	aft.	“	8

13.	Kirkton, Aberdeen Hall	South Perth	aft.	June	10
14.	Fullarton, Mrs. Wilson's Home	“ “	aft.	“	11
15.	Staffa, Town Hall	“ “	aft.	“	12
16.	Mitchell, Town Hall	“ “	aft.	“	13
17.	Sebringville	“ “	aft.	“	14
18.	Hampstead, Private Residence	North Perth		“	15
19.	Milverton, Library Hall	“ “		“	17
20.	Millbank, Ritter's Hall	“ “		“	18
21.	Listowel Mrs. Cleland's Home	“ “	aft.	“	19
	School House	“ “	eve.	“	19
22.	Palmerston, Library Hall	West Wellington	eve.	“	20
23.	Rothsay, Orange Hall	“ “	aft.	“	24
24.	Teviotdale, Cotswold S. S. Hall	Union	aft.	“	25
25.	Clifford, Town Hall	“	aft.	“	26
26.	Drew, Temperance Hall	“	aft.	“	27
27.	Ayton, Town Hall	South Grey	aft.	“	28
28.	Hanover, Miller's Hall	“ “	aft.	“	29
29.	Elmwood, Mrs. Dirstein's Home	“ “	aft.	July	2
30.	Louise, Miss M. J. Hastie's Home	“ “	aft.	“	3
31.	Dornoch's, Smith's Hall	“ “	aft.	“	4
32.	Durham, Town Hall	“ “	aft.	“	5
33.	Dromore, Russel Hall	“ “	aft.	“	6
34.	Robb, Mrs. I. Robb's Home	“ “	eve.	“	8
35.	Holstein, Robert's Hall	“ “	aft.	“	9

Division 9.—Miss M. A. Allan, Jarvis, May 27 to June 12.
Mrs. W. Dawson, Parkhill, May 27 to June 8.
Miss H. McMurchie, Harriston, June 10 to July 5.

1.	Goderich	West Huron	aft.	May	27
2.	Holmesville, Mrs. Mulholland's Home	“ “	aft.	“	28
3.	Londesboro, Foresters' Hall	“ “	aft.	“	29
4.	Blyth, Milne's Hall	“ “	aft.	“	30
5.	Wingham	“ “	eve.	“	30
6.	St. Augustine, Hall	“ “	aft.	“	31
7.	St. Helens, Hall	“ “		June	3
8.	Kintail, Lakeview Park	“ “		“	4
9.	Lucknow, Town Hall	South Bruce	aft.	“	5
10.	Ripley, Township Hall	Centre Bruce	aft.	“	6
11.	Bervie, Cook's Hall	“ “	aft.	“	7
12.	Armow	“ “	aft.	“	8
13.	Kincardine, Council Chamber	“ “	aft.	“	10
14.	Belgrave	East Huron		“	11
15.	Brussels, Carnegie's Hall	“ “	aft.	“	12
16.	Walton, A. O. U. W. Hall	“ “		“	13
17.	Molesworth, Mrs. W. J. McKee's Home	“ “	aft.	“	17
18.	Bluevale, Foresters' Hall	“ “		“	18
19.	Belmore	South Bruce		“	19
20.	Teeswater, Exhibition Park	“ “		“	20
21.	Gorrie, Town Hall	East Huron	aft.	“	21
22.	Fordwich, Mrs. Joe Davidson's Home	“ “	aft.	“	22
23.	Mildmay	South Bruce		“	24
24.	Walkerton, Private Residence	“ “	aft.	“	25
25.	Pinkerton	Centre Bruce	aft.	“	26
26.	Paisley, Town Hall	“ “	aft.	“	27
27.	Chesley, Biehn's Hall	“ “	aft.	“	28
28.	Williscroft, Baptist Church	“ “	aft.	“	29
29.	Port Elgin, Public Library	West Bruce		July	2
30.	Arkwright, Methodist Church	“ “	aft.	“	3
31.	Tara, Council Chamber	“ “	eve.	“	3
32.	Allenford, Methodist Church	“ “		“	4
33.	Tiverton	“ “		“	5

Division 10.—Miss M. V. Powell, Whitby.

1.	Meaford, Town Hall	North Grey		May	27
2.	Strathnairn, School House	“ “		“	28
3.	Bognor, Methodist Church	“ “	aft.	“	29
4.	Chatsworth, Foresters' Hall	“ “	eve.	“	30
5.	Desboro, Hall	“ “	aft.	“	31
6.	Keady, School House	“ “	eve.	June	1

7. Kilsyth, Town Hall	North Grey		June	3
8. Annan, Basement of Presbyterian Church	“ “		“	4
9. Brookholm, St. Paul's Church	“ “	aft.	“	5
10. Kemble, Library Hall	“ “	aft.	“	6
11. Shallow Lake, Noble's Hall	“ “	aft.	“	7
12. Clavering, School House	“ “		“	8
13. Hepworth, Spring Creek School	North Bruce	aft.	“	10
14. Park Head, School House	“ “	aft.	“	11
15. Wiarton, Town Hall	“ “	aft.	“	12
16. Colpoy's Bay, Bell's Hall	“ “		“	13
17. Mar, Mrs. A. Crane's Home	“ “		“	14
18. Hope Bay, School House	“ “	eve.	“	15
19. Lion's Head, Township Hall	“ “		“	17
20. Holland Centre	Centre Grey	aft.	“	19
21. Williamsford, Maccabees' Hall	“ “		“	20
22. Markdale, Dept. Agric. Office	“ “		“	21
23. Dundalk, Town Hall	“ “	aft.	“	22
24. Hopeville, McArdle's Hall	“ “		“	24
25. Badjeros, School House	“ “		“	25
26. Maxwell, Methodist Church	“ “		“	26
27. Eugenia, School House	“ “	aft.	“	27
Church	“ “	eve.	“	27
28. Priceville, Watson's Hall	“ “		“	28
29. Flesherton, High School	“ “	aft.	“	29
30. Vandeleur	“ “		July	2
31. Kimberley, Town Hall	“ “		“	3
32. Walter's Falls, Orange Hall	“ “		“	4
33. Rocklyn, Agricultural Hall	“ “		“	5
34. Heathcote, Public Hall	“ “		“	6
35. Clarksburg	“ “		“	8

Division 11.—Mrs. D. McTavish, Port Elgin, May 27 to June 7.
Miss M. Allison, Chicago, June 6 to 28.

1. Orangeville, Public Library	Dufferin.	aft.	May	27
2. Blount, Mitchell's Church	“		“	28
3. Camilla, Church Hall	“		“	29
4. Whittington, Methodist Church	“		“	30
5. Laurel, Presbyterian Church	“		“	31
6. Black's Corners, School House	“		June	1
7. Bowling Green, Mrs. W. Durkin's Home	“	aft.	“	3
8. Corbetton, Methodist Church	“	eve.	“	4
9. Horning's Mills, Church	“		“	5
10. Honeywood, Methodist Church	“		“	6
11. Shelburne, Town Hall	“		“	7
12. Violet Hill, Orange Hall	“		“	8
13. Rosemont	West Simcoe		“	10
14. Everett, Orange Hall	“ “		“	11
15. Avening, Schoolhouse	“ “		“	12
16. Creemore, May's Hall	“ “		“	13
17. Singhampton, Ross's Hall	“ “	aft.	“	15
18. Duntroon, Manary's Room	“ “	aft.	“	17
19. Batteau, The Cottage	“ “		“	18
20. Sunnidale Corners	“ “		“	19
21. Stroud, Methodist Church	South Simcoe	aft.	“	20
22. Churchill, Orange Hall	“ “		“	21
23. Coulson's Hill, English Church	“ “	aft.	“	22
24. Auld Kirk, Scotch Line	“ “		“	24
25. Newton Robinson	“ “		“	25
26. Thornton	“ “		“	26
27. Ivy, Orange Hall	“ “		“	27
28. Stayner	West Simcoe	aft.	“	28

Division 11 (*a*).—Mrs. D. McTavish, Port Elgin.

1. Crown Hill	East Simcoe	aft.	June	10
2. Shanty Bay, Mrs. Van Norman's Home	“ “	aft.	“	11
3. Orillia, Public Library	“ “	aft.	“	12
4. Ardtrea	“ “	aft.	“	13
5. Warminster, McKinley's Hall	“ “	aft.	“	14
6. Coldwater, Public Library	“ “	aft.	“	15
7. Waubaushene, Public Library	“ “	aft.	“	17
8. Victoria Harbour	“ “	aft.	“	18

Division 12.—Mrs. M. L. Woelard, Toronto.

1.	Penetanguishene, Public Library	Centre Simcoe	aft.	May	27
2.	Elliott's Corners, School No. 17	“ “	aft.	“	28
3.	Wyebridge, Lummis Hall	“ “		“	29
4.	Wyevale, Orange Hall	“ “		“	30
5.	Elmvale, Lance Hall	“ “		“	31
6.	Silver Maple, Mrs. D. Jamieson, 2nd Line, Floss	“ “	aft.	June	1
7.	Crossland, Knox Hall	“ “		“	3
8.	Phelpston, Shanahan's Hall	“ “		“	4
9.	New Flos	“ “		“	5
10.	Edenvale, Hall	“ “		“	6
11.	Minesing, A.O.U.W. Hall	“ “		“	7
12.	Anten Mills, School	“ “	eve.	“	10
13.	Dalston, Mrs. J. Palmer's Home	“ “		“	11
14.	Port Carling, Town Hall	South Muskoka		“	12
15.	Windermere, Mrs. F. Forge's Home	“ “	aft.	“	13
16.	Ufford, Schoolhouse	Centre Muskoka		“	14
17.	Utterson, Church	“ “	eve.	“	15
18.	Port Sydney, Mrs. Alexander's Home	“ “	aft.	“	17
19.	Allansville, Union Hall	“ “	aft.	“	18
20.	Bracebridge, Town Hall	South Muskoka		“	19
21.	South Macaulay, Mrs. W. J. Richard's Home	“ “	aft.	“	20
22.	Baysville, Town Hall	“ “		“	21
23.	Monck, Bracebridge Town Hall	“ “	aft.	“	22
24.	Bardsville, Mrs. F. Briese's Home	“ “		“	24
25.	Muskoka Falls, Schoolhouse	“ “		“	25
26.	Germania, German Schoolhouse	“ “	eve.	“	26
27.	Reay, Presbyterian Church	“ “	aft.	“	27
28.	Gravenhurst, Gull Lake Pines	“ “		“	28

Division 13.—Miss L. Reynolds, Scarboro Junction, May 31 to June 21.
Mi H. Grose, Lefroy, June 11 to 21.

1.	Sunderland, Town Hall	North Ontario	aft.	May	31
2.	Sandford, Oddfellows' Hall	“ “	aft.	June	3
3.	Goodwood, Town Hall	“ “	aft.	“	4
4.	Altona	“ “	aft.	“	5
5.	Zephyr	“ “	aft.	“	6
6.	Gamebridge, Grange Hall	“ “	aft.	“	7
7.	Brechin, Mrs. McPhee's Home	“ “	aft.	“	8
8.	Martin Siding, Schoolhouse	North Muskoka		“	11
9.	Aspdin	“ “		“	12
10.	Ashworth, Township Hall	“ “		“	13
11.	Ravenscliff, Patron Hall	“ “		“	14
12.	Huntsville, Court House	“ “		“	15
13.	Silverdale, Mrs. R. Scott's Home, Women's Inst. Mtg. only	“ “		“	15
14.	Hillside, Schoolhouse	“ “		“	17
15.	Dwight, Schoolhouse	“ “		“	18
16.	Fox Point, Thos. Salmond's Home	“ “		“	19
17.	Dorset, Town Hall	“ “		“	20
18.	Brunel, No. 5 Schoolhouse	“ “		“	21

Division 14.—Dr. Jennie Smillie, Toronto.

1.	King	North York	aft.	May	27
2.	Laskay, Temperance Hall	“ “		“	28
3.	Schomberg, Market Hall	“ “		“	29
4.	Kettleby, Mrs. J. T. Elliott's Home	“ “	aft.	“	30
5.	Vandorf	“ “	aft.	“	31
6.	Aurora	“ “	eve.	“	31
7.	Newmarket, Mrs. Wm. Walker's Home	“ “	aft.	June	1
8.	Queensville, Presbyterian Church	“ “	aft.	“	3
9.	Keswick	“ “	aft.	“	4
10.	Mount Albert, Methodist Church	“ “	aft.	“	5
11.	Richmond Hall	East York	aft	“	6
12.	Thornhill	“ “	aft.	“	10
13.	East Toronto, Y.M.C.A. Parlors	“ “	aft.	“	11
14.	Scarboro Junction	“ “	aft.	“	12

15. Highland Creek, Mrs. Heron's Home	East York	aft.	June 13
16. Agincourt, Mrs. J. Elliott's Home	“ “	aft.	“ 14
17. Box Grove, Temperance Hall	“ “	aft.	“ 15
18. Markham	“ “	aft.	“ 17
19. Stouffville, Council Chamber	“ “	aft.	“ 18
20. Claremont	South Ontario	aft.	“ 19
21. Kinsale, Private Residence	“ “	aft.	“ 20
22. Brougham, Mrs. Perryman's Home	“ “	aft.	“ 21
23. Whitevale	“ “	aft.	“ 24
24. Pickering	“ “	aft.	“ 25
25. Whitby, Private Residence	“ “	aft.	“ 26
26. Brooklin	“ “	aft.	“ 27
27. Columbus	“ “	aft.	“ 28
28. Shirley, School Grounds	“ “	eve.	“ 29

DIVISION 15.—Mrs. Horace W. Parsons, Forest.

3. Orono, Council Room	West Durham	aft.	May 29
4. Kendall, Methodist S. S. Room	“ “	aft.	“ 30
5. Newtonville, Methodist S. S. Room	“ “	aft.	“ 31
6. Charlecote, S. S. Hall, Moorish	East Durham	aft.	June 3
7. Port Hope, Dept. Agriculture Office	“ “		“ 4
8. Garden Hill, Temperance Hall	“ “	aft.	“ 5
9. Elizabethville, Church Basement	“ “	eve.	“ 5
10. Bewdley, Church	“ “		“ 6
11. Bailieboro, English Church S. S.	“ “	aft.	“ 7
12. Millbrook, Town Hall	“ “	eve.	“ 7
13. Manver's Station, Orange Hall	“ “	aft.	“ 10
14. Mount Pleasant, Temperance Hall	“ “	aft.	“ 13
15. Springville, S. S. Room	“ “	aft.	“ 14
16. Elmview, Bissell's School	West Northumberland	aft.	“ 15
17. Cobourg, The Armouries	“ “	aft.	“ 17
18. Grafton	“ “	aft.	“ 18
19. Coldsprings, Mrs. A. Harper's Home	“ “		“ 19
20. Roseneath, Town Hall	“ “		“ 20
21. Fenella, Hall	“ “		“ 21
22. Centreton, S. S. Hall	“ “		“ 24
23. Baltimore	“ “	aft.	“ 25
24. Smithfield, Methodist Church	East Northumberland	aft.	“ 26
25. Hilton, Town Hall	“ “	aft.	“ 27
26. Dundonald, Town Hall	“ “	aft.	“ 28
27. Castleton, Town Hall	“ “	aft.	“ 29
28. Warkworth, Town Hall	“ “	aft.	July 2
29. Codrington, Orange Hall	“ “	eve.	“ 3
30. Wooler, Methodist Church	“ “	aft.	“ 4
31. Menie, Mrs. Rennie's Home	“ “	aft.	“ 5
32. Campbellford	“ “	aft.	“ 6

DIVISION 16.—Miss E. Robson, Ilderton, May 27 to June 15.
Miss M. McKenzie, Toronto, May 27 to June 14.
Miss H. Gowsell, Port Arthur, June 15 to 27.

1. Norwood, Agricultural Office	East Peterboro	aft.	May 27
2. Warsaw, Town Hall	“ “		“ 28
3. Lakefield	West Peterboro	aft.	“ 29
4. Mt. Julian, Mrs. S. Reid's Home	North Peterboro		“ 30
5. Omemee	East Victoria		June 1
6. Lindsay, Public Library	West Victoria	aft.	“ 3
7. Little Britain	“ “	aft.	“ 4
8. Oakwood, Town Hall	“ “	aft.	“ 5
9. Sonya, Private Residence	“ “	aft.	“ 6
10. Manilla, I.O.O.F. Lawn	“ “	aft.	“ 7
11. Woodville, Town Hall	“ “		“ 10
12. Lorneville, Plank's Hall	“ “	aft.	“ 11
13. Linden Valley, Private Residence	“ “		“ 12
14. Islay, Mrs. H. Boyd's Home	“ “	eve.	“ 13
15. Cambray, Mrs. W. G. Webster's Home	“ “	aft.	“ 14
16. Dunsford, Methodist Hall	East Victoria	aft.	“ 15
17. Bobcaygeon, Parish Hall	“ “	aft.	“ 17
18. Cameron, Methodist Church	“ “		“ 18
19. Pleasant Valley, Mrs. W. J. Moyne's Home	“ “	aft.	“ 19

20. Fenelon Falls, Dickson's Hall	East Victoria	eve.	June	20
21. Burnt River, Orange Hall	“ “	aft.	“	21
22. Kinmount, Town Hall	“ “	aft.	“	22
23. Minden, Town Hall	Haliburton	aft.	“	24
24. Haliburton, Town Hall	“	aft.	“	25
25. Irondale, Scott's Hall, Gelert	“	aft.	“	26
26. Gooderham	“		“	27

Division 17.—Miss B. Millar, Guelph.

1. Inverary, Agricultural Hall	Frontenac	eve.	May	27
2. Westbrooke, Hall	“	aft.	“	28
3. Stella, Town Hall	Amherst Island	aft.	“	29
4. Conway, A.O.U.W. Hall	Lennox	aft.	“	30
5. Adolphustown, Town Hall	“	aft.	“	31
6. Picton, Library	Prince Edward	aft.	June	1
7. Milford, Hall	“ “	aft.	“	3
8. Cherry Valley, Methodist Church	“ “	aft.	“	4
9. West Lake, Methodist Church	“ “	aft.	“	5
10. Wellington, Fene's Park	“ “	aft.	“	6
11. Bloomfield, Methodist S. S. Room	“ “	aft.	“	7
12. Gilbert's Mills, Private Residence	“ “	aft.	“	8
13. Mountain View, Church	“ “	aft.	“	10
14. Rednersville, Private Residence	“ “	aft.	“	11
15. Belleville, New Y.M.C.A.	East Hastings		“	12
16. Melrose, Town Hall	“ “		“	13
17. Quinte, Clazies' Schoolhouse	“ “	aft.	“	14
18. Sec. Con. Sidney, Mrs. S. Ketcheson's	West Hastings	aft.	“	15
19. Frankford, Orange Hall	“ “	aft.	“	17
20. Wallbridge, Mrs. Wm. Moon's Home	“ “	aft.	“	18
21. River Valley, Schoolhouse	“ “	aft.	“	19
22. Chatterton, Mrs. M. Boardman's Home	“ “	aft.	“	20
23. Phillipston, Foresters' Hall	East Hastings		“	21
24 Roslin, Women's Institute Hall	“ “		“	22
25. Tweed, Town Hall	“ “		“	24
26. Ivanhoe, Orange Hall	North Hastings	aft.	“	25
27. Stirling, Town Hall	“ “	aft.	“	26
28. Wellman's Corners, Orange Hall	“ “	aft.	“	27
29. Springbrook, Foresters' Hall	“ “		“	28
30. Marmora, Masonic Hall	“ “	aft.	“	29
31. Queensboro, Private House	“ “	aft.	July	2
32. Madoc, Town Hall	“ “	aft.	“	3
33. L'Amable	“ “		“	4
34. Bancroft, Town Hall	“ “	eve.	“	5
35 Ft. Stewart	“ “		“	6
36. Clydesdale	North Peterboro'		“	9

Division 18.—Mrs. F. W. Watts, Clinton.

1. Lansdowne, Town Hall	South Leeds	aft.	May	27
2. Seeley's Bay, Masonic Hall	“ “	aft.	“	28
3. Elgin, Town Hall	“ “	aft.	“	29
4. Westport	“ “		“	30
5. Newboro, Court House	“ “		“	31
6. Athens	Brockville		June	1
7. Delta, Town Hall	South Leeds		“	3
8. Maynard	South Grenville	aft.	“	4
9. Spencerville, Town Hall	“ “	aft.	“	5
10. Shanley	“ “	eve.	“	6
11. Merrickville, Girls' Guild Hall	North Leeds and Grenville	aft.	“	7
12. Burritt's Rapids	South Grenville		“	8
13. Vernon	Russell		“	10
14. Kars, Town Hall	Carleton	eve.	“	11
15. Manotick, Harmony Hall	“		“	12
16. Stittsville, Hartin's Hall	“	aft.	“	13
17. South March, Town Hall	“	eve.	“	14
18. Carp, Town Hall	“	aft.	“	15
19. Kinburn, Orange Hall	“	eve.	“	17
20. Antrim, Town Hall	“	eve.	“	18
21. Galetta, Russell's Hall	“		“	19

22. Almonte, Council Chamber	North Lanark	aft.	“	20
23. Clayton, Foresters' Hall	“	eve.	“	21
24. Carleton Place, Council Chamber	South Lanark	aft.	“	22
25. Perth, Library Hall	“ “	aft.	“	24
26. Lanark, Council Chamber	North Lanark	aft.	“	25
27. Maberly	South Lanark	eve.	“	26
28. Mt. Grove	Frontenac Centre		“	27
29. Burnstown, Temperance Hall	South Renfrew	aft.	“	28

DIVISION 19.—Mrs. L. Rose Stephen, Huntingdon, Que.

1. Iroquois	Dundas	aft.	June	3
2. Morrisburg, Town Hall	“	aft.	“	4
3. Williamsburg, Temperance House	“	aft.	“	5
4. Winchester Springs	“	aft.	“	6
5. Morewood	“	eve.	“	7
6. Chesterville, Town Hall	“	aft.	“	8
7. Finch, Massey Hall	Stormont	aft.	“	11
8. Cornwall Centre	“	eve.	“	12
9. Martintown, St. Andrew's Hall	Glengarry		“	13
10. Maxville, Cong'l Church School Room	“		“	14
11. Vankleek Hill, Town Hall	Prescott	aft.	“	18
12. Stafford (Micksburg) Public Hall	North Renfrew		“	20
13. Shields, Schoolhouse	“ “	aft. or eve.	“	21
14. Greenwood, Old Methodist Church	“ “		“	22
15. Westmeath, Public Hall	“ “	eve.	“	24
16. Beachburg, Bennie's Hall	“ “		“	25
17. Forester's Falls, Temperance Hall	“ “		“	26
18. Queen's Line, Schoolhouse	“ “		“	27

NORTHERN SERIES OF FARMERS' AND WOMEN'S INSTITUTE MEETINGS, 1912.

The meetings announced in Divisions 20, 21, 22 and 23 are held under the auspices of the Farmers' and Women's Institutes of the riding concerned. The hall, or other place of meeting, indicates the place of meeting for the afternoon session of the Farmers' Institute and the joint meetings of the Farmers' and Women's Institutes, to be held immediately following the regular afternoon sessions of the two Institutes, or in the evening.

See local announcements for information regarding place of meeting, speakers and subjects chosen.

Division 20—Miss E. E. Smillie, Toronto.
Mr. J. C. Shaw, Norwich.

1. Emsdale, Agricultural Hall	East Parry Sound	May	28
2. Doe Lake	" " "	"	29
3. Midlothian	" " "	"	30
4. Magnetawan	" " "	"	31
5. Burk's Falls	" " "	June	1
6 Sundridge	" " "	"	3
7. Wattenwyl	" " "	"	4
8. South River	" " "	"	5
9. Trout Creek	" " "	"	6
10. Granite Hill	" " "	"	7
11. Golden Valley	" " "	"	8
12. Arnstein	" " "	"	10
13. Loring	" " "	"	11
14. Restoule	" " "	"	13
15. Carr	" " "	"	14
16. Hotham	" " "	"	15
17. Powassan, Town Hall	" " "	"	17
18. North Cobalt	Temiscamingue	"	18
19. Haileybury (Buche Tp.)	"	"	19
20. New Liskeard, Carnegie Library	"	"	20
21. Milberta	"	"	21
22. Chester's Corners	"	"	22
23. Hillview	"	"	24
24. Uno Park	"	"	25
25. Hanbury	"	"	26
26. Thornloe	"	"	27
27. Earlton	"	"	28
28. Hilliardton	"	"	29
29. Tomstown	"	July	2
30. Heaslip	"	"	3
31. Charlton	"	"	4
32. Marter	"	"	5
33. Chamberlain	"	"	6
34. Matheson	"	"	8
35. Monteith	"	"	9
36. Porcupine	"	"	10
37. Cochrane	"	"	11

Division 21.—Miss S. Campbell, Brampton.
Clark Hamilton, Dundela, Ont.

1. Mattawa	East Nipissing	June	3
2. Brule, Schoolhouse	" "	"	4
3. Eau Claire	" "	"	5
4. Feronia	West Nipissing	"	6
5. Sturgeon Falls	" "	"	7
6. Warren	" "	"	8

7. Goulais Bay	Centre Algoma	June	10
8. Tarentorus	" "	"	11
9. South Prince	" "	"	12
10. West Korah	" "	"	13
11. Base Line	" "	"	14
12. East Korah	" "	"	15
13. Garden River	North Shore Algoma	"	17
14. Echo Bay	" " "	"	18
15. Bar River	" " "	"	19
16. Laird	" " "	"	20
17. McLennan	" " "	"	21
18. Desbarats	" " "	"	22
19. Johnson's Schoolhouse	East Algoma	"	24
20. Bruce Mines	" "	"	25
21. Cloudslee	" "	"	26
22. Alma Heights	" "	"	27
23. Little Rapids	" "	"	28
24. Livingstone Creek	" "	"	29
25. Sowerby	" "	July	2
26. Iron Bridge	" "	"	3
27. Walford Hall	" "	"	4
28. Massey	" "	"	5
29. Webbwood	West Nipissing	"	6
30. Woodlands	" "	"	8
31. Lee Valley	" "	"	9

DIVISION 22.—Miss G. Gray, Toronto.
David James, Thornhill, Ont.

1. Little Current (Women's Meeting only)	East Manitoulin	June	3
2. Sheguindah, Hall	" "	"	4
3. Green Bay, Schoolhouse	" "	"	5
4. Budges, Schoolhouse	" "	"	6
5. Hilly Grove, Schoolhouse	" "	"	7
6. Tehkummah, Schoolhouse	" "	"	8
7. South Baymouth	" "	"	10
8. Sandfield, Schoolhouse	" "	"	11
9. Silver Bay (Big Lake)	" "	"	12
10. Mindemoya, Schoolhouse	" "	"	13
11. Carnarvon, Schoolhouse	" "	"	14
12. Grimesthorpe	West Manitoulin	"	15
13. Billings (Kagawong)	" "	"	17
14. Ice Lake	" "	"	18
15. Long Bay	" "	"	19
16. Poplar	" "	"	20
17. Barrie Island	" "	"	21
18. Gordon's	" "	"	22
19. Evansville	" "	"	24
20. Silver Water	" "	"	25
21. Marksville, Town Hall	St. Joseph's Island	"	28
22. Stone, Schoolhouse	" "	"	29
23. Kentvale, Orange Hall	" "	July	2
24. Richard's Landing, Town Hall	" "	"	3
25. Carterton	" "	"	4

DIVISION 23.—Mrs. Thos. Shaw, Hespeler.
R. S. Stevenson, Ancaster, Ont.

1. Dorion	Thunder Bay	May	30
2. Ouimet	" "	"	31
3. Port Arthur	" "	June	1
4. Slate River	" "	"	3
5. Hymers	" "	"	4
6. South Gillies	" "	"	5
7. O'Connor	" "	"	6
8. Conmee	" "	"	7
9. Murillo	" "	"	8
10. Barclay	Kenora	"	11
11. Dryden, Hutchinson's Hall	"	"	12

12. Glengoland, S. H.	Kenora	June 13
13. Oxdrift	“	“ 14
14. Eagle River	“	“ 15
15. Kenora	“	“ 18
16. Jaffray	“	“ 19
17. Sleeman	Rainy River	“ 24
18. Stratton	“ “	“ 25
19. Shenston	“ “	“ 26
20. Barwick	“ “	“ 27
21. Emo	“ “	“ 28
22. Barnhart	“ “	“ 29
23. Big Fork	“ “	July 2
24. Devlin	“ “	“ 3
25. Burriss	“ “	“ 4
26. Fort William	Thunder Bay	“ 8

Women's Institute Lecturers and their Subjects, 1912.

ALLAN, MISS MARGARET A., Jarvis.—Since graduation in Household Science at Alma College, Miss Allan has taken an active part in the work of her home Institute at Jarvis.

Subjects:—

"Home Nursing."
"Laundry Work."
"Planning and Serving Meals."
"Household Sanitation."
"Hygiene."

ALLISON, MISS MAY, 4600 Ellis Ave., Chicago.—Miss Allison is a teacher of wide experience in kindergarten work, and has had exceptional opportunities for studying child nature. She has been active in the Mothers' Clubs of London, and for one season had charge of one of the playgrounds in Brooklyn, N.Y. During the summer of 1911 Miss Allison had charge of the supervised playgrounds made possible through the activity of the Women's Institute of Belleville. Her subjects are such as will appeal especially to the mothers in the Institutes.

Subjects:

"Home Occupation for Country Children."
"The Growth of the Religious Nature in Childhood and Youth."
"Why Some Children are Brighter than Others."
"Beauty in the Home."

BACKUS, DR. ANNIE, Aylmer.—Dr. Backus brings her medical training and practice, as well as her experience in country life, and places them at the disposal of the women of the Province. She is eminently practical, ready and willing to help womankind. She has been closely identified with Institute work throughout the Province, and especially in her own riding, for ten years. Dr. Backus will illustrate her lectures on "Physical Development of the Child" and "Poultry Raising" at the evening sessions by the use of stereopticon views.

Subjects:

"Hygiene of the Home and Aids in Nursing."
"Consumption and Its Prevention."
"The Importance and Meaning of Woman's Work."
"Training in the Home."
"Education of Girls."
"Physical and Mental Harm of Fault-Finding."
"Medical Inspection of Schools."
"Poultry Raising."—Illustrated.
"The Physical Development of the Child."—Illustrated.

BRETHOUR, MRS. J. E., Burford.—Mrs. Brethour has been one of the most progressive and successful district officers, and has also given assistance to many of the Institutes surrounding Brant. She will be remembered as one who has taken part in our annual Convention. Her advice and suggestions regarding Institute work will be found helpful. Her addresses are animated, interesting and instructive, and are specially helpful to those who are responsible as officers of the Institutes. Mrs. Brethour will be able to attend only a few meetings this season.

Subjects:

"Simple Entertaining in the Country."
"Homely Wrinkles for Housekeepers."
"Is a Woman's Time Worth Anything?"
"The Evolution of the Country Woman."
"How to Make an Institute a Success."
"Books: Our Friends or Enemies?"

Burns, Mrs. C. H., 117 Bernard Ave., Toronto.—Mrs. Burns gave a series of demonstration lectures to a group of six Institutes during November, December, January and February. It was largely due to Mrs. Burns' capabilities that this initial course proved so successful. Her practical experience in housekeeping, with a subsequent course in Domestic Science, enabled Mrs. Burns to make her lectures and demonstrations of the greatest value. Mrs. Burns is a close student of the comparative value of foods, and the discussions at the meetings which she may attend should bring out much information of value regarding the choice of foods and method in cooking.

Subjects:

"The Home Care of the Sick."—Demonstrated.
"How Much Time Do We Waste in Our Household Work?"
"The Food Value of Cheese and Its Digestibility."—Demonstrated.
"Preparation and Cooking of Milk and Eggs."
"Demonstrations and Lectures in Invalids' Dishes."

Campbell, Miss Susie, Brampton.—Miss Campbell is an Institute worker of considerable experience who always leaves her audiences enthusiastic in pursuing definite lines of work. She is untiring in her fruitful efforts to leave with her hearers noble thoughts and sentiments in keeping with her tastes and surroundings. Miss Campbell is an ex-teacher and has judged dairy products, needle work, and fine art at many of our fall fairs. Her success in extending the Women's Institutes throughout Peel County has been most marked, and she has done much to stimulate branches in many parts of the Province to better work.

Subjects:

"The Ideal Home."
"A Young Lady's Accomplishments."
"The Influence of Women."
"The Judicious Housekeeper and Homemaker."
"Home and School."
"Our Fair Dominion."
"Demonstrations in Needlework."
"Emergency Treatment."

Dawson, Mrs. W., London East.—Mrs. Dawson is a poultry woman of international reputation, and both the farmers' wives and townspeople would be much benefited by her practical talks along lines indicated in the following subjects:—

Subjects:

"The Care and Feeding of Laying Hens."
"The Raising of Early Chicks."
"The Requirements of the Egg Market."

Dawson, Mrs. W., Parkhill.—Mrs. Dawson is an enthusiastic supporter of the Women's Institutes. She has done much to place the Parkhill Institute in the front rank of progressive societies. She has delivered a number of addresses before the local organization and has given the work prominence through the local press. With her liberal education, wide reading and close study of present day conditions in the home, she is in a position to make the subjects announced of great interest and value.

Subjects:

"The Farmer's Wife as an Economic Factor."
"Types of Institute Women."
"The Institute and the Community."
"The Hand that Rocks the Cradle"—(Problems for Mothers).
"Easily Made Garments for Women and Children."—Illustrated.

Ferguson, Mrs. W. B., Strathroy.—Mrs. Ferguson has been an enthusiastic and capable lecturer and an active worker in local organizations for several years. Scientific training in Domestic Science and Dairying, practical experience on the farm, and her ability to present information in a pleasing, forceful manner insures effective work on the part of Mrs. Ferguson.

Subjects:

"The Conveniences and Labor-Saving Devices We May Have in Our Homes."
"Butter Making in the Home."
"Health a Duty."
"The Place Our Institute May Fill in Our Lives."
"The Value and Power of the Ideal."
  (*a*) In the Individual.
  (*b*) In the Home.
  (*c*) In the Community.

Gilholm, Miss B., Bright.—Miss Gilholm has been an efficient officer of the District Women's Institute of North Oxford, and is qualified to give valuable assistance and advice to officers of both district and branch Institutes. Miss Gilholm has taken the regular creamery course at the Guelph Dairy School and holds a specialist's certificate in buttermaking, as well as a diploma in the theory and art of buttermaking. Miss Gilholm's knowledge and appreciation of country life enables her to impart information in a manner much appreciated by the members.

Subjects:

"The Plant and Its Relation to the Dairyman."
"Will the Dairy Cow Remove the Mortgage?"
"Food Values and Uses of Milk."
"Thoughts of Old Friends and New."
"Canadian Women."

Gowsell, Miss Hattie M., 471 St. Patrick Sq., Port Arthur, Ont.—Miss Gowsell is a teacher of wide experience and has been active in local Institute work in Hastings County, as well as in Port Arthur, where she is engaged as a domestic science teacher.

Subjects:

"The Education of Girls."
"Milk and Its Uses as a Food."
"Foods: Their Different Constituents."—Illustrated.
"Meats: Their Chemical Composition and Cooking."
"Diet for the Young and Old."

Gray, Miss G., 650 Bathurst St., Toronto.—Miss Gray needs no introduction to the majority of Institute members in Ontario, as she has visited nearly all sections in which the work has been organized. She has devoted several seasons to Institute work in New York State. She is a thorough master of the subjects announced, and presents her information in a clear, forceful and attractive manner.

Subjects:

"Human Nutrition."—Illustrated by Food Chart.
"Cuts and Preparation of Meats."
"How to Improve Home Conditions."
"Interior Decorations of the Home."—Illustrated.
"Things Worth While."
"Our Assets."
"Woman's Place in Primitive and Present-day Culture."
"The Individual's Value to Society."

Guest, Miss E. J., Belleville.—Miss Guest has had practical experience in a farm household and is a specialist and M. A. from Toronto University. Miss Guest is in charge of the English Department of the Belleville Collegiate Institute. Her activity in the Parkhill Institute did much to make towards success in that organization, and since going to Belleville her efforts have resulted in the formation of a Mothers' Club Women's Institute in that city. With a broad outlook and deep sympathy, coupled with her commonsense, practical methods, she can be depended upon to have something of special value for the Institute which she may visit. She is especially interested in child welfare.

Subjects:

"Vacations for Girls."
"The Mother: What She Owes to Herself, the Home and the Community."
"Squaring the Institute to the Needs of the Community."
"Teaching Boys and Girls About Money."
"The Unseen Background of Life."

GUEST, DR. EDNA M., 700 Bathurst St., Toronto.—Dr. Guest, whose childhood days were lived in a rural home, has always had a keen appreciation of conditions in rural districts. Always of a literary turn of mind, she has occupied positions which have given her experience in public speaking. She has had the honor of being president of the Women's Medical Society of Toronto University, which position is an evidence in itself of her capabilities. Dr. Guest is now practising in the City of Toronto. She is in thorough sympathy with the work of the Women's Institutes, and we regret that she is able to attend only an occasional meeting this season. Her list of subjects is an indication of the practical information which may be received from her address.

Subjects:

"Tuberculosis: Cause, Prevention and Cure."
"Laws of Health."
"The Nervous System: Its Construction and Modern Abuse."
"Causation and Prevention of Disease."
"Emergencies."

HAMILTON, DR. L. S. M., 68 MacPherson Ave., Toronto.—Dr. Hamilton is a graduate of Toronto University. She is a speaker of experience and presents her subjects in a bright, interesting and instructive manner.

Subjects:

"The Health of Woman."
"A Child's Rights."
"Teaching Life Truths."
"The Life of a Working Girl in the City."
"Eliminative Functions of the Body."

HOTSON, MISS A. M., Parkhill.—Eight years' experience in kindergarten work has impressed upon her the needs of children and the necessity for common-sense in supplying these needs in their life both at school and at home. Miss Hotson took her post-graduate work in Chicago, where she lived in Gertrude House, and had the opportunity of seeing the effect of residence life on girls and the value of the Home Makers' and Arts courses for young women.

It was largely through Miss Hotson's influence that rooms have been provided for the use of the Women's Institute at Parkhill. A mothers' and babies' room has been provided, small tables, chairs and toys being furnished for the children. Miss Hotson will have many suggestions of value regarding programmes, co-operation of mothers and teachers, etc. Miss Hotson is not available this season for any considerable number of meetings.

Subjects:

"The School: Its Relation to the Community."
"Citizenship."
"The Education of Women."
"The Love of the Beautiful."
"Home Problems: Imagination, Discipline, Home Occupation for Children."
"The Family as a Shaping Influence."

HUGHES, MISS D. I., 1111 College St., Toronto.—Miss Hughes is a graduate in Domestic Science. Her experience in hospital work and familiarity with both country and city conditions and requirements gives her a fund of information which will be much appreciated by the Institute members.

Subjects:

"The Profession of Home Making."
"The Interior of Our Homes."
"Household Management."
"Domestic Art, and What It Means to Women."
"Teaching Children to Sew."
"Our Clothes: Their Selection and Making."
"Food for the Sick."

HUNTER, MRS. W. J., Pleasant.—Mrs. Hunter is one of our progressive Women's Institute Members and has been of great assistance as a district officer in furthering the work in Peel County. She is mistress of a fine country home and has been active in local Institute work, as well as assisting at some of our Annual Conventions and attending meetings in various sections of the Province.

Subjects:

"The Making of Meat Pies."
"Systematic Housekeeping."
"The Benefits of Institute Work."
"Training Children in the Home."
"Don't Worry."
"Little Things that Make Home Happy—or Otherwise."

McALPINE, DR. MARGARET, 619 Bathurst St., Toronto.—Dr. McAlpine is a practising physician of Toronto and has had the valued experience of lecturing before a great many organizations in that city. She has also had the advantage of a post-graduate course in medicine in Philadelphia. Many sections of the Province have profited by her addresses, and she is always a welcome delegate. Dr. McAlpine can attend only a few meetings this season.

Subjects:

"Mental Culture."
"The Romance of Medicine."
"How to be Well and Happy."
"Heredity."
"Perfect Womanhood."
"Work and Recreation."
"Emergency Treatment."
"Fresh Air and Tuberculosis."
"Home Hygiene."

MACKENZIE, MISS MARY, 29 Bellevue Ave., Toronto.—Miss MacKenzie is a third year student in the Department of Household Science, University of Toronto. Her experience as a public school teacher and familiarity with country conditions and requirements are valuable assets in Institute work.

Subjects:

"Means of Avoiding and Combating Disease Germs."
"Home Nursing."—Demonstrated.
"Housekeepers' Economy of Time, Energy and Dollars."
"The Use and Abuse of Food."

McMURCHIE, MISS H., Harriston.—Miss McMurchie is a Macdonald Institute graduate, and graduates this year in philosophy from Toronto University. She has been in Institute work for several years, and is always an acceptable lecturer.

Subjects:

"Our Social Responsibilities."
"The Education of Girls."
"The Other Woman."
"System in Housekeeping."
"Labor-Saving Devices."

McTAVISH, MRS. D., Port Elgin.—We are fortunate in securing the services of Mrs. McTavish, who is so well and favorably known among the Institutes, to attend a few meetings this year. Her wide experience in Institute work, both as a local officer and a Departmental lecturer, enables her to render valuable service to the Institute officers who are looking for suggestions as to how to make the work most successful.

Subjects:

"Some Economies We Should Practise."
"Training Our Future Housekeepers."
"Means of Preserving Health."
"Home Economics."

McTURK, MRS. E. B., Lucan.—Mrs. McTurk has had special training as an optician and is well and favorably known as an enthusiastic, efficient worker in the local organizations. She has had considerable experience as a Departmental lecturer. Her subjects speak for themselves.

Subjects:

"The Care of the Eyesight."
"Mother's Influence."
"Home Care of Sick and Visiting Sick."
"Canning and Preserving."
"What That Other Institute is Doing."
"Sewing Buttonless Garments."—Demonstrated.
"For Home and Country."

MILLAR, MISS B., 22 Liverpool St., Guelph.—Miss Millar's special training, wide experience, enthusiasm and tact stand her in good stead as an Institute worker. Through her experience in travelling dairy work in Nova Scotia and Institute work in New York State and Ontario, she has developed into one of our most acceptable and effective workers. Miss Millar is prepared to give the Institutes the benefit of her special training in home nursing and emergencies.

Subjects:

"The Day's Work."
"Modern Methods in the Laundry."
"Some Essentials in Nursing."
"Milk and Its Uses as Food."
"Dairy Sanitation."
"The Boarder Cow."
"Buttermaking and Other Dairy Problems."
"What Money Cannot Buy."
"You and I as Nation Builders."

MURDOCH, MISS MARY E., Palmerston.—Miss Murdoch, since graduation in Domestic Science from Macdonald Institute, Guelph, has had experience in hospital work. Her familiarity with country conditions and requirements will enable her to give information to the rural Institutes which will be thoroughly appreciated.

Subjects:

"Bee-keeping as an Occupation for Women."
"Legumes and Their Use."—Demonstrated.
"Quick Desserts."—Demonstrated.
"Home Economics."
"Diet in Its Relation to Health."
"Some Farm Problems as They Concern Women."

NORMAN, MRS. M. N., 616 Bloor St. W., Toronto.—Parenthood and racial ethics constitute one of the most vital, fundamental, and, strangely enough, one of the most neglected of all important themes. Mrs. Norman brings to its exposition, practical views, clear enunciation, choice English, with chaste diction of unusually happy style. Her personality as a speaker is particularly attractive. Her teaching appeals to the judgment as definite, convincing and final.

Subjects:

"Citizens of the Future."
"Democracy in the Home."
"The Art of Being Merry."

PARSONS, MRS. HORACE W., "Stewartleigh," Forest.—Mrs. Parsons is a member of the Press Committee of the National Council of Women, in which organization she has taken an active interest for some years. Women's Institute work appealed to her and she has devoted much energy and thought in preparing addresses of vital interest to all women. Her wide experience in society work places her in a position to give valuable advice to the officers of the Institutes.

Subjects:

Afternoon.

"The Child and the Story."
"Heredity."
"Mental and Physical Development."
"Marriage."
"The Magnetism of Personality."
"Canadian Laws Concerning Women and Children."
"Books of To-day and Their Influence."

Evening.

- "Our Inheritance."
- "Canadian Writers."
- "Women Workers of Our Time."
- "Books with a Purpose."

Powell, Miss M. V., Box 453, Whitby.—Miss Powell is deeply interested in everything which pertains to the advancement and education of the present and future nation-builders, and this work appeals very strongly to her. She has already had several years' experience in Institute work, and the logical, pleasing and forceful manner in which Miss Powell presents her very important addresses appeals effectivly to her audiences.

Subjects:

- "Character Building."
- "Refinement in the Home."
- "How We Can Help Our Girls, and How They Can Help Us."
- "Canada Our Home."
- "Value of Cheerfulness.
- "Demonstrated Talk on Plain and Fancy Sewing."

Reynolds, Miss Lulu, 754 Gerrard Street E., Toronto.—Miss Reynolds has had extended experience as Secretary of the East York Women's Institute, and as a Departmental delegate. Institute officers will find her advice and suggestions bearing upon Institute methods and work of special interest and value.

Subjects:

- "Household Management."
- "Foods—Their Different Constituents." Illustrated by chart.
- "Horticulture."
- "Character Building."
- "How to Make the Institute a Success."
- "The Twentieth Century Woman's Accomplishments."

Robson, Miss Ethel, Ilderton.—Miss Robson is a firm believer in the advantages of country as compared to city life, especially when one takes an active interest in bee-keeping or some of the lighter branches of farming. Miss Robson has addressed public gatherings with great acceptance, and her services will be much appreciated by the Institute members.

Subjects:

- "Bee-Keeping on the Farm."
- "Economic Problems of the Country Girl."
- "The Value of the Ideal."

Root, Mrs. W. J., Wiarton.—Mrs. Root is District President of the North Bruce Institutes. She has taken a deep interest in local work and can be depended upon to give practical, helpful addresses along the lines indicated in her subjects.

Subjects:

- "Women's Part in Canada's Progress."
- "First Aid to the Injured."
- "Home Nursing."
- "The Successful Institute."

Stephen, Mrs. Laura Rose, Huntingdon, P.Q.—Mrs. Stephen needs no introduction to the Women's Institutes of Ontario. Her ability as a public speaker and her wide knowledge of affairs place her in a position to render the best of service to the Institutes. Mrs. Stephen has travelled from the Atlantic to the Pacific in connection with Institute and other instruction work along homemaking and dairy lines. Her practical and carefully thought-out addresses, delivered in a pleasing and forceful manner, have placed her in the front rank of Institute workers. Mrs. Stephen is well known as a writer on dairy topics, and has published a book on "Farm Dairying."

Subjects:

- "Home Butter Making."
- "A Woman's Part on a Dairy Farm."
- "Composition, Care, and Food Value of Milk."
- "Ice Creams, Mousse, Sherbets."—(Demonstrated, if desired.)
- "Our Way of Making House Work Easier."
- "The Influence of Environment."

Shaw, Mrs. Thos., Hespeler.—Mrs. Shaw has been an enthusiastic worker in local Institutes as well as a representative of the Agricultural Department in this Province and Nebraska. Her practical experience and tact insure addresses of value and interest.

Subjects:

"Beneficial Suggestions to Branch Institutes."
"Worry, Work, Waste."
"Some More Things Women Should Know."
"Listen, Learn and Love."
"What is Worth While."
"Some Advantages of a Country Home."

Smillie, Dr. Jennie, 1075 Dovercourt Road, Toronto.—Dr. Smillie is a graduate in medicine at the University of Toronto, 1909. She has also taken a post graduate course in Philadelphia, and is now practising medicine in Toronto. Her medical training, together with her experience as a public school teacher in country places, and three seasons' Institute work, fits her to render service which should be much prized by the Institutes.

Subjects:

"Disease Germs."
"Prevention and Treatment of Tuberculosis."
"Hints for the Sick Room."
"Bandaging and Changing Bedclothing."—Demonstrated.
"Personal Hygiene and Health in the Home."
"Emergency Treatment."
"Infectious Diseases of Childhood."
"The Joy of Living."

Smillie, Miss E. E., 1075 Dovercourt Road, Toronto.—Miss Smillie is a graduate nurse with considerable practical experience in her profession, and has also had the advantage of three seasons of Women's Institute work.

Subjects:

"Emergency Treatment."—Demonstrated.
"Home Nursing."—Demonstrated.
"Personal Hygiene and Health in the Home."
"Disease Germs."
"Diet in Illness."
"Canadian Literature and Writers."
"Literature for the Home."

Watts, Mrs. F. W., Clinton.—Mrs. Watts has had marked success both as an Institute officer and lecturer. She is a forceful, pleasing speaker, whose addresses have been much appreciated. Being a graduate of the American College of Mechano Therapy, she will be able to give many valuable and helpful health hints.

Subjects:

Afternoon.
"Would You Be Beautiful ?"
"Home Nursing."—Demonstrated.
"What Mothers and Daughters Should Know and Remember."
"Women's Institute Helps."
Evening.
"Why Is It ?"
"Happiness in the Home."

Woelard, Mrs. M. L., 496½ Bloor St. W., Toronto.—Mrs. Woelard is intensely interested in all matters which pertain to the home, and her addresses have been much appreciated. We can assure Institute officers and members that Mrs. Woelard will have messages of interest and benefit for her audiences.

Subjects:

"Poultry Raising as a Business for Women."
"Plain Sewing and Art Needlework."—Demonstrated.
"Canning and Preserving, Jelly Making, Marmalade and Pickles."
"Health Culture—Home Nursing."—Demonstrated.
"The Value of Beauty—Mental, Physical and Spiritual."
"What's the Use."
"The Home: Its Work and Influence."

GENTLEMEN SPEAKERS.

Grose, Henry, Lefroy.—Mr. Grose is the owner of a first-class farm in Simcoe County, and has been eminently successful in general farming. He has the happy faculty of presenting hard facts in a pleasing manner, and his address to boys is very instructive and uplifting. Mr. Grose has attended Institute meetings for several seasons with acceptance, and his services will be specially acceptable in the northern sections.

Subjects:

Afternoon.

"How to Increase and Maintain the Fertility of the Soil."
"Selection of Seed."
"Home Dairy Work."
"The Growing of Clover."
Evening.
"The Canadian Boy and Girl."
"Benefits of Institute Work."

Hamilton, Clark, Dundela.—Mr. Hamilton is a successful farmer, a writer of some prominence on Agricultural topics, and a most acceptable Institute lecturer. He manages a 200-acre farm, on which pure-bred Holstein-Friesian cattle and Yorkshire swine are special features.

Subjects:

"The Calf and Heifer: Their Feeding, Breeding and Care."
"Summer and Autumn Care of the Dairy Herd."
"Crop Rotation."
"Methods and Objects of Soil Cultivation."
"Pork Production."
"Co-operation."
"The Social and Economic Advantages of Rural Life."

James, D., Thornhill.—Mr. James took possession of the farm on which he now resides some thirty-four years ago, and has succeeded in converting it from a bed of weeds and rubbish into a clean, systematic and well-equipped farm. He is a believer in general farming, as will be seen from his list of subjects. Some thirty years ago Mr. James and his neighbors formed an association and held weekly meetings throughout the winter. At that time he began a collection of a library, and to-day has one of the best-equipped agricultural libraries to be found among practical farmers.

Subjects:

Afternoon.
"Destruction of Weeds."
"Home Dairying."
"Growing and Curing Alfalfa."
"Poultry on the Farm."
"The Feeding of Farm Animals."
"Seed Improvement."
Evening.
"Some Mistakes Made by Farmers."
"Boy Life and Bird Life as Viewed from the Farm."
"Dangers to Health in our Rural Homes, and Some of the Remedies.

Shaw, J. C., Norwich, Ont.—Mr. Shaw is a close student of agricultural methods and conditions and he has made good as a practical farmer. He is particularly well qualified to undertake work in Northern Ontario, having cleared a considerable quantity of land and later reclaimed a run-down, weedy farm.

Subjects:

"Seed Improvement and the Eradication of Weeds."
"Underdraining."
"How to Increase the Production of the Average Farm."
"Cultivation of the Soil."
"Ontario for the Farmer."

STEVENSON, R. S., Ancaster, Ont.—Mr. Stevenson has long been a leader among the dairymen of the Province, and is recognized as one of our best authorities on the building up of the dairy herd and the growing of crops best suited for maintenance. He is an authority on crop rotation and the cultivation of the soil.

Subjects:

"The Dairy Cow—Breeding and Feeding."
"Fodder Crops for Dairy Cattle."
"Crop Rotation."
"Cultivation of the Soil."
"Seed Improvement."

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